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CHRISTOPHER GRAVETT ANGUS McBRIDE

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Dedication
This book is for Jane

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Introduction

This work is concerned with the organisation and employment of armies within the Holy Roman Empire. Because of the large area of territory covered and numerous peoples involved, a book of this size can, of necessity, present only a broad outline. The Swiss Confederacy and the early Landsknechts, while relevant, are mentioned only briefly, as each is the subject of a separate volume in this series[1].

Medieval Germany comprised a number of states under the nominal control of the Holy Roman Emperor. The first German emperor in the West was Charlemagne, crowned in 800 AD. He ruled much of western and central Europe, but his vast territories were later divided among his warring descendants. By 1300 the Empire lay rather in central and eastern Europe. Emperor Frederick I (Barbarossa) had added the word 'Holy' to his title, but the unity it implied belies the reality.

In the west of the Empire lay dukedoms and states where lack of central control had produced a confused pattern of holdings. The borders marched with those of the Kings of France and the Dukes of Burgundy, who—especially in the 15th century—encroached more and more on old imperial lands such as Brabant and Luxemburg. To the north, Holstein shared a border with Denmark—a rival for Baltic trade, and not above invading the provinces to the south. In the east were the duchies of Bavaria and Austria, and the Mark of Brandenburg. On this frontier the Emperor always faced a threat from the Slavs beyond the borders; of necessity, the German rulers were forceful and powerful men. It was in the east that the emperors saw their most profitable opportunity for expansion, resulting in imperial support for colonisation and conquest, especially by the knights of the Teutonic Order in 13th-century Prussia, Livonia and other Baltic states. Meanwhile the Slav kingdom of Bohemia lost its native king in 1305, and was ruled by the German house of Luxemburg. Other Slav nations, such as Moravia, were absorbed into the Empire. To the south lay Italy, whose northern states were also claimed by the Germans. The relationship of Emperor and Pope

A battle scene from the *Manessa Codex* of the early 14th century. The knight wearing the horned helm bears his heraldic arms in escutcheons on surcoat and horse trapper. He is closely followed by his banner bearer, whose reins appear to be made of chain to prevent them from being cut. Two other warriors wear plate leg armour, and one has an early bascinet. Notice how in the heat of battle it was not considered unchivalrous to grasp an opponent round the neck! (Universitäts-Bibliothek, Heidelberg)

[1]MAA 58, *The Landsknechts*; MAA 94, *The Swiss at War 1300–1500*.

Eltz Castle on the Mosel. Many strongholds of the 14th and 15th centuries were basically earlier structures modified to meet the growing demands for comfort. The siting of numerous castles on near-impregnable crags or steep slopes resulted in irregular ground plans, while ranges of domestic buildings were amalgamated into the outer walls. (Embassy of the Federal Republic of Germany)

was rarely smooth, and after the death of Frederick II in 1250 interference in Italian affairs generally decreased, though the 'King of the Romans' was still expected to journey to Rome for his imperial coronation.

By 1300 there was little crown land left, for previous Italian adventures had aggravated problems in Germany. Compared with other European monarchs the emperors were rather weak figures, despite their nominal lordship over wide territories. Their princes were men who held great fiefs direct from the crown; they included dukes (*Herzoge*) who originally led the armies; about a hundred counts (*Grafen*) of varying rank; and strong nobles such as the *Burgraves*, who held certain imperial cities. These princes vied for power while the lesser nobility strove to consolidate their positions. It has been estimated that by 1300 there were about 10,000 castles in Germany, often in the hands of ordinary knights. Private war (*Fehde*) was accepted, and distinguished from public campaigns (*Krieg*) in which emperor or prince took part.

With the election of Wenceslas in 1378 a period of ineffective central authority ensued. Princes divided lands between family members, maintaining titles while creating new land units, and exacerbating feuds. Knights and towns formed protective leagues; there were peasant uprisings, and crusades against heretical Hussites in Bohemia. Later in the 15th century the princes gained control of taxation, and expended wealth on gunpowder and artillery which the lesser nobles could ill afford. The private castle began to decline. Three houses rose above the rest: the families of Wittelsbach, Luxemburg (during the 14th and early 15th centuries), and latterly the powerful Austrian Habsburgs. The struggles of these and other houses, and of the knights and towns, were to be a feature of German history throughout the Middle Ages.

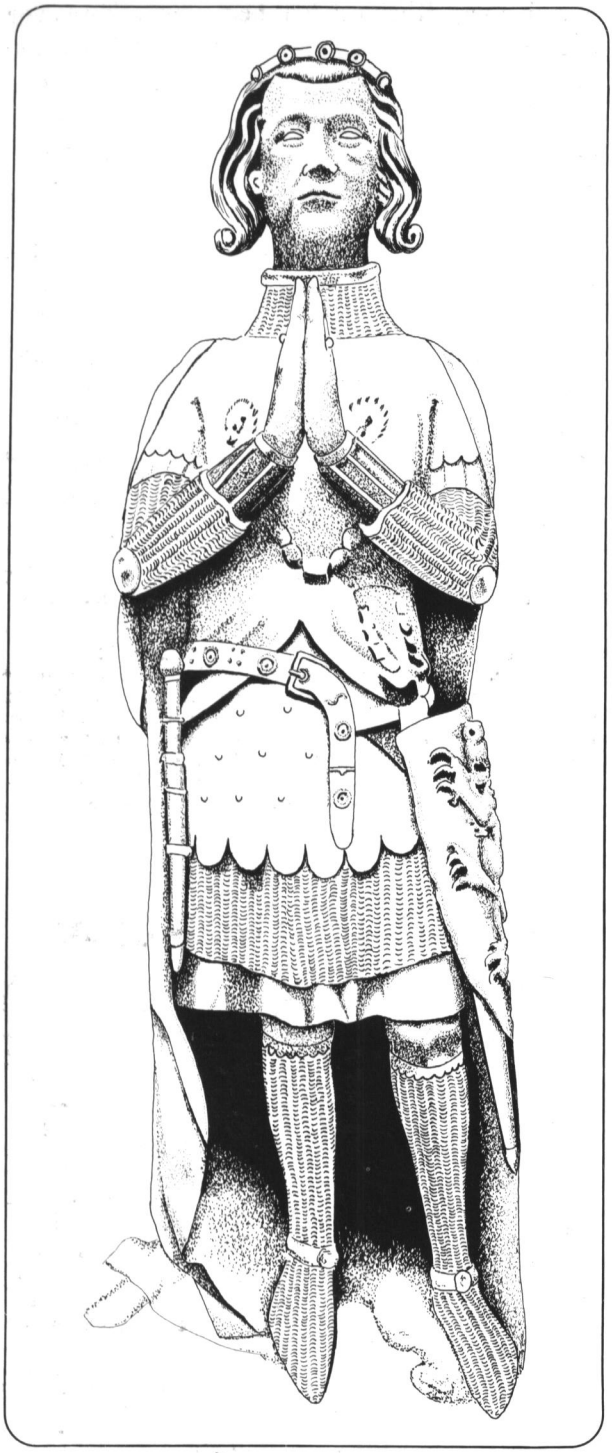
Organisation

Feudalism did not become established in the Empire at such an early date as in western Europe, especially in the east, where lay the powerful marcher territories. However, during the 13th century military levies based on feudal agreements had become commonplace. The bond was not as strong as was often the case in the west, nor was liege homage to one particular lord promoted to any extent. Feudal musters were not ideal, and could result in delays over the assembly of vassals. During the 13th century such musters were supplemented with contingents of hired troops, and this paid element became more prominent in the course of the next century. Money payments replaced quotas of soldiers to enable the Emperor to hire professional troops. The system sounds effective, but in reality was hampered by the selfish attitudes of those nobles directly responsible to the Emperor. The latter was largely dependent on the good will of the Imperial Diet or parliament. As this was composed of the very princes who had taken power for themselves, it is hardly surprising that they wished to maintain their own prerogatives, with an emasculated Emperor as their purely nominal head. As the 14th century wore on it became increasingly difficult to field national armies of the size requested by the crown.

The journey to Rome for the imperial coronation

Map of the Holy Roman Empire in the later 15th century.

(the *Romzug* or *Romfahrt*) was the occasion for many lords to travel with the 'King of the Romans'. The procession across the Alps and through North Italy might include as many as 12,000 men and take up to six months. This force was raised by consent of the Diet, which remained the basis for raising troops well beyond 1500. In order to raise men to be used on the German side of the Alps it was traditional to give 40 days' notice; if they were required to serve beyond the Alps this was greatly extended to 410



The effigy of Gottfried von Bergheim, died 1335, from Münstereifel church, Rhine Province. Though the shortened surcoat, coat-of-plates and mail coat were common throughout Western Europe at this time, the forearm defences—apparently of metal strips on leather—were especially popular in Germany. The chains, attached to the coat-of-plates through slits in the surcoat at chest level, were used to retain weapons, helm or shield in combat; though seen elsewhere, they found lasting favour in the Empire. This knight also wears plate knee and elbow pieces.

days. On 15 August 1309 Henry VII announced his intention to travel to Rome, and expected his troops to be ready by 1 October the following year. Ludwig of Bavaria claimed that the imperial towns should send troops of horse 'as was customary'. However, as the German involvement in Italy declined, so too did the desire of the nobility to bestir themselves. In 1452 Frederick III arrived in Rome without any princely Electors in his train, and with only a few thousand soldiers as escort.

Nevertheless, the basis of raising troops for the Emperor remained that of *Romermonaten* or 'Rome money' long after the feudal levies had been overtaken by cash payments for the hiring of professional soldiers. In contrast to the lackadaisical feudal contingents, hired troops could be raised more quickly and were often more reliable. But the Emperor was still faced with the prospect of haggling with his Diet to secure the best contract possible, and might then find that the agreed contributions were so slow in materialising that he had to borrow heavily and at inflated rates in order to realise the troops. After deducting administrative costs, the number of men that could be raised often fell short of that required by the Emperor. Sometimes the Diet gave leave to levy the *Gemeiner Pfennig*, a tax of one half or one per cent of all property or income. The grant of troops (*Volkshilfe*) or of money (*Geldhilfe*) was usually made for the forthcoming year.

The shift from feudal to hired troops reflects the economic bias in Europe, where military forces were based rather on wealth than on fiefs. However, the military summons of vassals did not die out entirely, surviving either as a duty for land (*Lande saufgebot*) or for a fief (*Lehnsaufgebot*). In 1401 Rupert, King of the Romans called for a feudal levy of 'lances' to accompany his trip to Rome; those lords who were summoned received 25 florins per month to maintain each lance, but the towns were expected to look after their own contingents.

The means of numbering soldiers was increasingly by *Gleven*. The term *Gleve* first appeared at the beginning of the 13th century, when it referred to the lance; in France it was called a *glaive*. Gradually the sense was transferred to include the knight and the little group of men who served him in battle. The term may have referred to three horsemen as early as 1310. At this date knights were supported

by sergeants; but as the century progressed the latter were replaced by mercenaries or by *Diener*, the partially armed servants of the knights and squires. The term *Knecht* had been debased to mean a serving man. Other troops were termed *Panzerati* or *Renner*.

During the 14th century the term *Gleven* was used to denote a certain number of men, but the exact composition seems to have varied. By mid-century references make it clear that these men are armed. In 1373 Meinecke von Schiestedt was engaged by the Emperor Charles IV with '100 men in *gleven*, each *gleve* of three horsemen, one mounted and armed, another with missiles'; a page rides the third horse. A similar composition is found in other documents, but other combinations are also encountered. In Swabia a *gleve* denoted four horses; in Nuremberg, two horses with a spearman; in Strasbourg, five horses; in Regensburg, one spearman, one archer and three horses. There could also be several attendants acting as footsoldiers, and up to two servants and three missilemen in a *gleve*, the latter dismounting to fight. As many as ten men, both horsed and on foot, are occasionally noted. In Germany the heavy horseman himself was variously known as a *Lanze*, *Spiess*, *Gleve* or *Helm*. Every ten *gleven* were set under a captain, and every 100 under an *Oberhauptmann*. Also attached to the *gleven* might be found *Einspannige*, or horsemen with no following who could be used for tactical purposes.

Princely Levies

Unrestricted by the whims of a national Diet, princes were more likely to persuade their own Diets of the need to supply troops. They too recruited troops both by summoning those who owed service from fiefs, and by hiring soldiers. Feudal obligations also provided the opportunity to call out bodies of freemen who were expected to serve as required. These levies were also summoned when an imperial demand for feudal contingents was sent out. One man in every 30, every ten, sometimes even one in every five was called up. These levies were regarded as potentially dangerous, however: they encouraged attitudes of social defiance. An example came in 1401, when the inhabitants of the Appenzell district of South Germany resisted both the Abbot of St Gall and Austrian troops, despite being abandoned by their Swiss allies. The Count of Wendenberg-Rheineck led them—himself wearing a peasant blouse—while they harried lords and destroyed castles. In 1408 the counts and knights of Swabia attacked them near Bregenz; after losing about 40 of their number the Appenzellers abandoned their artillery and retreated over the Rhine.

Despite the latent danger of encouraging uprisings, nobles were prepared to use general levies for their own purposes. Thus in 1388 we find the Count of Württemberg reinforcing his feudal and mercenary soldiery with a contingent of freemen during his war with the towns. Similarly, the Duke of Bavaria and other princes endeavoured to strengthen their following at low cost. In particular, the Dukes of Austria—who in the 14th century felt the power of the Swiss and in the 15th century faced Hussites and Hungarians—were

Another scene of combat from the *Manessa Codex*. Many of the knights wear no waist belts; the padded aketon worn under the mail can be seen below the surcoat of the rider in the foreground. The tie below his knee prevented the mail from sagging. His heraldic eagle is repeated on his saddle. One man wears a visored bascinet, while the infantry have skull caps and padded coifs to guard their heads. Their shields are of an out-dated form. (Universitäts-Bibliothek, Heidelberg)

anxious to bolster their strength. In 1421, shortly after the beginning of the Hussite wars, Duke Albrecht V ordered all able-bodied men residing in his lands between the ages of 16 and 60 to be ready for service. He specified that from every ten households one man should be chosen, the strongest and best-fitted; the nine who remained were to look after his trade and supply him on his war service. Of every 20 men thus recruited three should have handguns, eight crossbows, four pikes and four war flails. Equipment was also to include an iron hat, body armour of iron or a jerkin, gauntlets, and a sword or knife. Each group of 20 men was expected to have a wagon. Those evading the levy were fined, and the money paid in part to the Duke and in part to the *Feldhauptmann*.

Towns and Town Leagues

The breakdown of central authority in the 13th century had been a major factor in the creation of communal armies and leagues of towns or cities within the Empire. Early examples of communal armies were those of the *Dithmarschen* of Saxony, and the Swiss. The *Dithmarschen* were protected by sea and marsh, only the east offering an easy passage to an enemy force. Lords seldom interfered with the men of this difficult region, and when they did so the communal army of peasants, led by their clan leaders, repulsed them. In 1227 a Danish army had been defeated at Bornhöved. In 1319 and 1404 the *Dithmarschen* foiled two attempts by Holsteiners to overpower them. In the latter campaign the Duke of Schleswig and the Count of Holstein were surprised as they returned from an expedition against the *Dithmarschen*. Attacked in a forest, their horses were brought down and many nobles slain. A Danish army was trounced in 1500 at the battle of Hemmingstedt.

The Swiss cantons of Uri, Schwyz and Unterwalden had formed the 'Everlasting League' in 1291, rejecting all outside authority. A lack of fertile farmlands helped to encourage the Swiss towards mercenary pursuits; and they perfected the use of the long pike, becoming a redoubtable force in their own right. During the 14th century they continually defeated Austrian armies sent against them, and during the following century were equally successful against the Burgundians.

The most famous league was that of the Hanse, a loose confederation of German cities engaged in trading with Russia, Scandinavia and Flanders. The League was formed largely to protect mercantile interests. Many towns drifted in and out, the peak being reached in 1477 when 38 towns were represented at the Hansetäge. The vassals of the Hanse provided the marine infantry of free *knechte* or mercenary units. All the Hanse were armed and provided fixed contingents, the organisation receiving financial contributions from each member. There was an understanding with the Duke of Mecklenburg and the nobility of Holstein, and the shield of the League bore the imperial eagle. A principal antagonist was Waldemar IV of Denmark. Matters came to a head at Hälsingborg in 1362, when the German fleet encountered the Danes near the south-west coast of Sweden during the Danish-German war. The German vessels won

A cattle raid, from the early 14th-century *Manessa Codex*. The mounted crossbowmen and spearman on the left wear mail neck guards which might appear to be attached to their helmets. They have long mail gauntlets with separate finger stalls, but no leg armour. The padded sleeves of an aketon are visible on the left-hand figure. This type of 'soft' armour is also worn with a high collar by the figure grasping a rather indignant chicken. (Universitäts-Bibliothek, Heidelberg)

a decisive victory. After some setbacks a new admiral of the fleet was appointed; he proceeded to ravage many towns on the coasts of Denmark and Sweden, and captured Copenhagen itself. Waldemar fled, and peace was agreed in 1370. From 1468 the *Dithmarschen* allied themselves with the Hanseatic town of Lübeck.

In permanence and loose structure the Hanseatic League was atypical. When German towns or cities banded together it was to meet a particular threat, usually from the power of a prince or bishop or else from the depredations of local robber knights. To merchants war was unprofitable, disrupting trade and requiring money to train town militias or to pay mercenaries. Yet when forced to act, the towns became a force to be reckoned with. In campaigns against robber knights municipal troops accounted for the destruction of over 100 castles. Much of this conflict was strictly local in character; indeed, in 1388 it is stated in a resolution accepted by both Rhennish and Swabian cities that the burghers wished to return home by dusk!

The towns were normally divided into quarters for ease of troop dispersal, each quarter being based on the principal gates and under the command of a *Viertelmeister* or quartermaster appointed by the council. He was assisted by other officers, a trumpeter and watchtower guards. The construction of defences such as walls, gates and ditches consumed a large amount of the returns from taxation, the more so if drill squares and firing ranges were provided. The manpower needed for defence was also expensive. New citizens of Cologne were required to swear annually that they would obey the alarm bells and keep body armour ready for use. All towns expected their citizens to come to the muster with arms and armour, but the city armoury would have to supply items such as cannon and wagons.

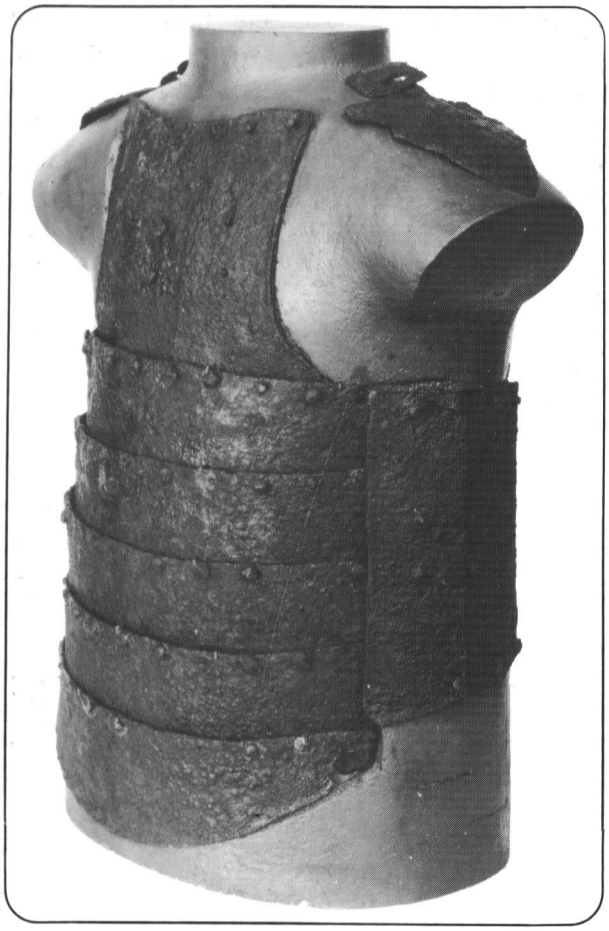
The Limburger Chronicles list the numbers of men expected to appear at a muster, and specify how much armour they are expected to possess. Between 1336 and 1342 2,000 burghers were to assemble when required with *panzer* and *harnasche* or body armour. In 1393 Metz and Frankfurt were expected to possess large guns, plus shot weighing seven or eight hundredweight[1]. By the late 14th century some towns employed *Büchsenmeister* or master gunners to oversee the ordnance.

The brass of Ameling von Varendorp, a Westphalian knight of the mid-14th century. While many now wore limb defences of plate or strips of iron, this warrior is content with mail: the only plate armour is a pair of knee cops. Though even short surcoats were increasingly being discarded, he retains a full-length garment which gives no hint of a coat-of-plates beneath.

Cities clothed their own contingents in colourful uniforms, both for ease of recognition in battle and to display their wealth and power. In the first half of the 14th century some towns still used great banners drawn on carts called *carroccio*. One of the last appearances was in 1336 when the great banner of Strasbourg, depicting the Virgin and Child on a gold ground, was seen in the train of the town forces as they marched to confront Berthold von Bucheneck. The guilds came to battle under their respective banners.

From the year 1431 comes a description of the march of the men of Regensburg when they were

[1]One hundredweight (cwt.) = 112 lbs = c.50 kg.



Armour Number 1 from the grave pits of the Battle of Wisby, 1361. This battle was in fact fought between Danes and Gotlanders, but the pits yielded quantities of armour of the type often seen in contemporary German illustrations. The iron plates were riveted inside a leather or canvas foundation leaving the rivet heads visible. It was put on like a poncho, and the sides were fastened to the back of the garment. Apart from the Wisby finds, armour of this date is rare; hoops of body armour have survived from Kussnach in Switzerland (see MAA 94, *The Swiss at War*, for illustrations). (Antikvarisk-topografiska arkivet, Stockholm)

The large number of skeletons discovered at Wisby afforded the opportunity to study the effects of medieval weapons. Many bore wounds to the left part of the body, suggesting right-handed opponents. The large number of leg wounds probably indicated that few wore leg armour (one skeleton had both legs sheared off). It has been suggested from the evidence that blows were aimed at the head as a feint, the stroke then being altered to descend on the legs. The skull illustrated is that of an old man who had already lost most of his teeth. He was still wearing his mail hood when buried. A blow has struck the right side of his lower jaw from below and severed part of the upper jawbone. (Antikvarisk-topografiska arkivet, Stockholm)

called to join the troops assembling to counter the Hussite threat from the east. Behind the expedition leader came 73 horsemen and 71 crossbowmen with the banner, then 16 handgunners. Next came the wagon bearing the cross accompanied by the chaplain, followed by smiths, leatherworkers, armourers, pike-makers, tailors, cooks and butchers—a total of 248 men. They were accompanied by six cannon with equipment, 3 cwt. of cannonballs and 2 cwt. of lead shot. Forty-one wagons carried the consignment of powder and lead, 6,000 arrows, 300 fire arrows, 19 handguns, cowhides for the stables and tents, and corn provisions for six weeks. Ninety head of oxen, 9 cwt. of cooked meat, 9 cwt. of lard, 1,200 pieces of cheese, 80 stock-fish, 56 lbs of uncut candles, vinegar, olive oil, pepper, saffron, ginger, 2 tuns and 73 kilderkins of Austrian wine and 138 kilderkins of beer were carried in the supply wagons. The cost of this campaign was 838 pounds 3 schillings.

Cities used the *gleven* system for some time, patricians and wealthy artisans helping to equip the troops. New cities in both Germany and Italy put much faith in the cities' knights. There occurred some social blurring, so that some merchants instructed to serve under arms were made knights. They became *Konstaflers* and served mounted, in towns such as Magdeburg and Zürich. In 1363 the Strasbourg *Konstaflers* provided 81 *gleven*, the guilds

21, the shipmen five, the shopkeepers four, and the wine merchants four.

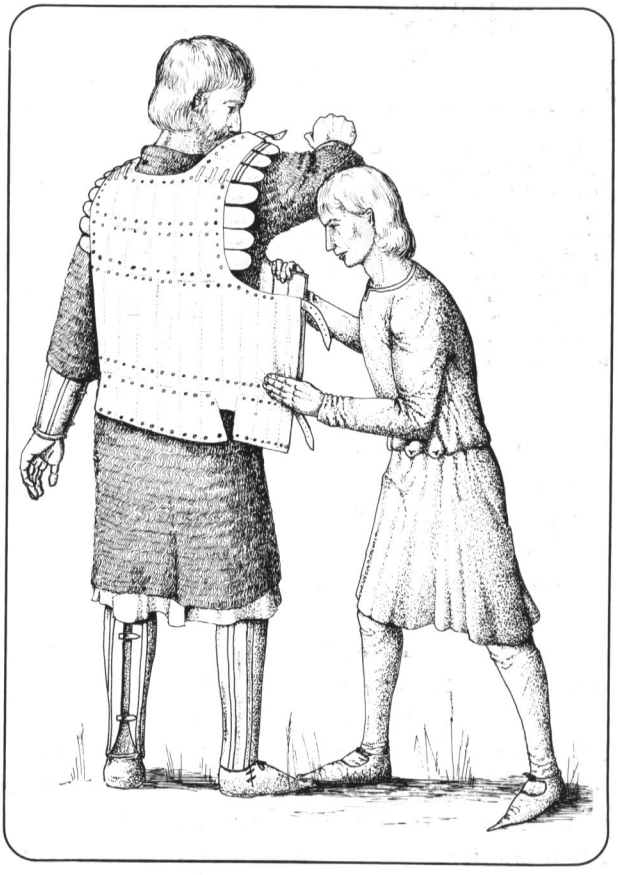
The militia was often led by the mayor of the town but, increasingly, trained soldiers were employed. A knight who had sold his services might be placed in charge of them, especially as artillery became more widespread. Hired troops were at first allowed to defend only outer towers and suburbs, presumably from a healthy distrust of their loyalty; however, they were later allocated to inner areas also. The money spent on financing mercenaries unavoidably precluded raising a large militia force as well. In 1371 Cologne sent out a force of mercenaries and well-armed burghers against Odenkirchen at a cost of 41,584 marks 9 schillings. The use of mercenaries was often more formalised than in Italy. The Cologners renewed a treaty with the Count of Berg in the mid-14th century which was almost identical to one agreed a century earlier.

Swiss mercenaries were frequently hired in areas close to the Swiss cantons. In 1450 the men of Ulm recruited Nurembergers, German and Bohemian lords and Swiss soldiery at two Rhennish guilders, thereafter paying five guilders a month. They also received their board and a share in any booty taken. The wounded were cared for, and received their pay. Before marching out the men had to swear to spare the land and its inhabitants and to keep the peace between each other; the leader had the right to punish offenders. Cologne negotiated for Swiss mercenaries in 1474, when their captain William Herter offered 400 men led by six or eight *Rottmeister* under his personal control. The cost would be 100 florins for each of the 15 knights he would provide, eight florins for each *Rottmeister* and four for each trooper. Cologne refused to pay Herter a 200 florin indemnity, and the agreement was never sealed. Metz, on the other hand, is recorded in 1490 as having 1,500 horse and 800 foot in its service, composed wholly of foreign mercenaries from 11 nations.

The 14th century saw a spate of town risings within the Empire. Internally, lesser townsmen rebelled against patrician monopolies; externally, the towns and cities vied with knights, noblemen and even their own bishops, as they had a century before. In 1377 the Duke of Württemberg was beaten by the citizens of Reutlingen outside the town while they were on a plundering expedition. Quarrels between towns and bishops recurred during the 15th century. In 1425 Strasbourg, Mainz, Augsburg, Bamberg and Würzburg were all in conflict with ecclesiastical forces. The archbishop of Cologne found himself in a grand struggle with the town of Soest in Westphalia in 1442 which lasted five years. The town allied itself to the Duke of Cleves-Mark, so the archbishop hired several thousand Saxon and Bohemian mercenaries; but he could not afford their wages long enough to break the citizens.

Town leagues had been formed in the 13th century for mutual protection, and in the 14th century they became powerful and widespread. One of the strongest was the Swabian League, set up in 1376 under the leadership of Ulm to stop the Emperor pledging his towns to the princes in order to pay his debts, and to resist lords and knights who

The discoveries from the graves at Wisby show that some coats-of-plates did not have hooped skirts but consisted solely of vertical plates. Moreover, some opened down one or both sides and over one or both shoulders. The hooped armour from Kussnach in Switzerland also fastened over the shoulders, and presumably laced together at the sides.



The castle of Eltville on the Rhine, built by Archbishop Baldwin of Trier in about 1330. During the 14th century some castles were built which followed more closely the trends established in Western Europe. These included regular ground plans, flanking towers, and, as seen here, the erection of tower houses. (Embassy of the Federal Republic of Germany)

harassed them. In 1331 and 1347 towns in Swabia had already been forming alliances to defend their rights. The citizens and their supporters armed themselves with spears and crossbows, and recruited units of mercenaries, the *Knechte de Freiheit* or 'soldiers of liberty'. Gunpowder helped to beat off both imperial knights and those of the Duke of Bavaria, sent against the League in the year it was formed. It was joined by the Alsatian League and even by some Swiss cities.

In 1381 the League of Cities (*'der Stede Bundt'*) was formed in the Rhineland, and included 36 Swabian towns and others such as Frankfurt and Nuremberg, in addition to several royal towns and cities. A number of barons, nobles, knights and squires (e.g. Rupert of Nassau) joined the League, which allied itself with the Swabian League. This Rhennish League hired 200 lances and could field large numbers of townsmen, artisans and peasants. Within a year the League was a menace, becoming in many ways as insufferable as those knights and lords it was formed to oppose.

It was the battle of Döffingen in 1388 which marked the turning point in the power of urban forces, when knights and peasant levies succeeded in defeating the League. This was not the end of strong town armies, but after the 'great town war' the Rhennish and Swabian Leagues finally fell apart. Others survived—in 1405 the League of Marbach encompassed 17 Swabian towns and several noblemen. Yet during the 15th century many towns began to decline. They had not solved the anarchy in Germany. The Hanse lost much trade to the English and Dutch; and many cities in the area forfeited independence to the Dukes of Pomerania and Hohenzollern and the Margraves of Brandenburg. In the lower Rhineland some towns continued to hold their ground, while in South Germany a few actually prospered.

In 1488 a new Swabian League was created by Hugo of Werdenberg, the captain of a knightly organisation called the League of St George. This new confederation was designed to oppose the

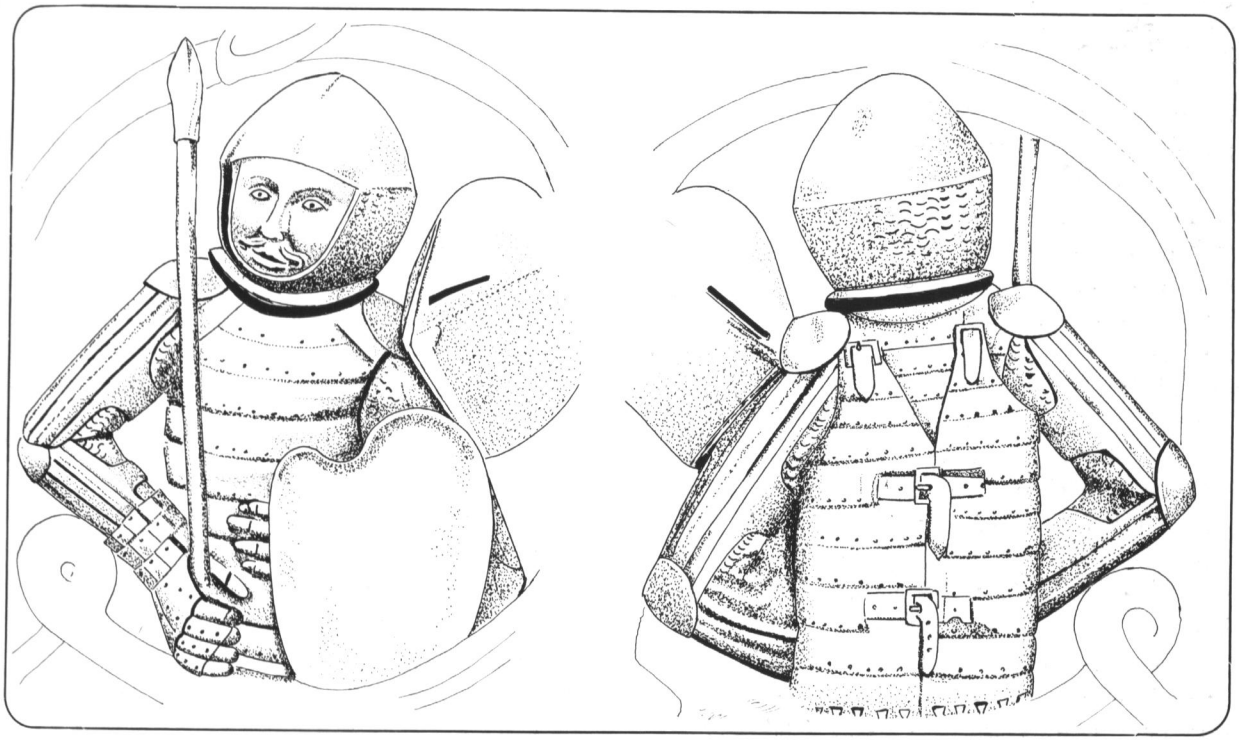
Wittelsbachs and included Eberhard of Württemberg, Sigismund of Austria, nobles, prelates, knights and 22 cities, all with a common army.

Leagues of Knights

While the towns built up leagues, some knights followed a similar tack, to bolster their claims against the princes and protect themselves in turn against the towns. The Golden Bull of 1356 had made the princes Electors of Empire, but the lesser nobles and knights still defied them from their castles. Unruly bands were especially troublesome in Swabia and Franconia, in fragmented areas of western and central Germany where robber knights or *Raubritter* raided from their castles or fortified houses. In the widespread anarchy the peasantry suffered. Leagues sprang up with inventive names: the Horn in Hesse, the Crown, the Sword, St Martin, St George. That of St George comprised several lesser Swabian families who had allied during the Appenzell war (1403–1411). The knights saw the need to guard against internal feuding as well as external interference; they were aware of possible contracts with cities or princes who might hire their services. Initially the League was formed for three years, with captains elected anew after each period. Oaths of loyalty were sworn

The backplate of a German gauntlet. Perhaps dating from about the mid-14th century, the plate was probably riveted inside a cloth or leather glove and provided with numerous small plates to protect the fingers. Actual specimens are so uncommon that it is helpful to turn to pictorial evidence for any reconstruction. (Reproduced by courtesy of the Trustees of the British Museum)

A warrior carved on the Levitic pews in Verden Cathedral. This figure of the mid-14th century shows how the coat-of-plates could be fastened. The sides strap together at the rear, while their top edges are buckled to the back flap. Notice also the solid shoulder pieces, and gauntlets of numerous small plates.



to any new captain. The League might enrol a prince by offering fighting men for his use. Emperor Sigismund (1410–1437) wanted it to ally with the imperial cities against the princes, while Frederick III (1440–1493) hoped the League would maintain a sort of status quo in Swabia.

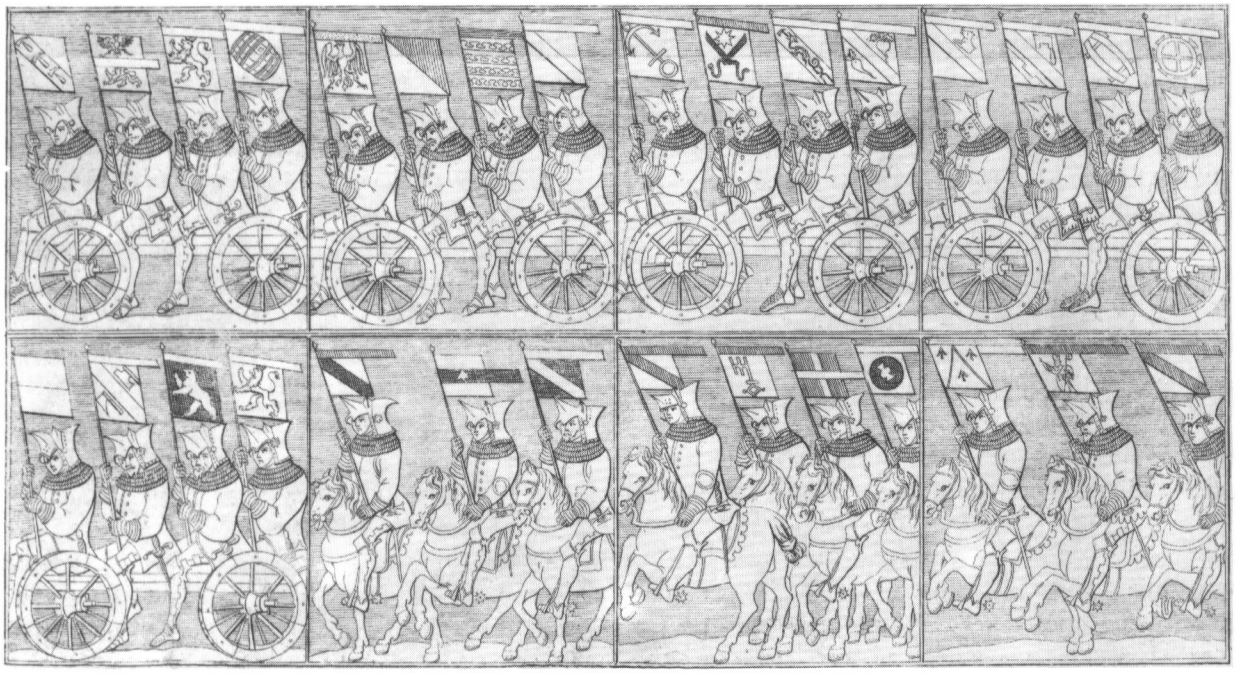
These groups of knights soon took on military independence. The men wore uniform dress or insignia, e.g. the red sleeves of the Lahn-Rhine countryside, crowns, stars or wolves. Knights distinguished themselves from squires by substituting gold for silver trimmings. A league forced Eberhard of Württemberg to ally with several Swabian towns who saw their trade threatened during the mid-14th century. In 1380 the Knights of the Growling Lion (so called from the arms borne on their shields) besieged Frankfurt to free some of their companions captured while pillaging. In 1397 the League of Lizards was formed in western Prussia to support the Poles and oppose central government by the Teutonic Knights. A league called the *Stellmeiser* seized nearly every princely castle in Brandenburg and fought the Margrave in 1415. However, as their wealth increased during the 15th century, the princes began to reassert their power. Gradually the knightly leagues decreased in number.

Levies of the Strasbourg guilds. This 17th-century engraving by Seupel depicts the scene on a stained glass window of c.1392 which is now lost. The infantry are transported to the field on carts; they wear plate armour, and buttoned coat-armour which is probably padded. The tailed banners favoured in Germany bear their guild emblems. The horsemen are from the noble associations, and wear similar armour. (Musées de Strasbourg)

The Hussites

In Bohemia the Czech spirit of separatism had existed since the kingdom was absorbed into the Empire and settled by large numbers of Germans. In the early 15th century the Bohemian Jan Hus was spreading radical ideas which the Pope saw as heresy. Emperor Sigismund offered Hus safe conduct to a council; then had him arrested, and subsequently burnt. In Bohemia the reaction was heretical and dangerous. The revolt to drive out the Germans and avenge the death of Hus was led by a man of military skill, Jan Žižka of Trocnow, who had fought for the Poles against the Teutonic Knights.

Žižka saw that he could not emulate the tactics of the Swiss pikemen; his homeland consisted of rolling hills rather than mountains. In any case, his horde of townsmen and peasants were not from fighting stock long trained in arms. Though they were imbued with a common ideal, it would be sheer folly for the Czechs to march out to face the might of German chivalry, whose armoured knights could



ride down such a revolt. The Czech nobility could not be relied upon to assist; their numbers were pitifully small, and many displayed a lukewarm attitude to the uprising. To solve his problem Žižka drew on his experiences while serving in eastern Europe, and decided to equip his forces with the *wagenburg*.

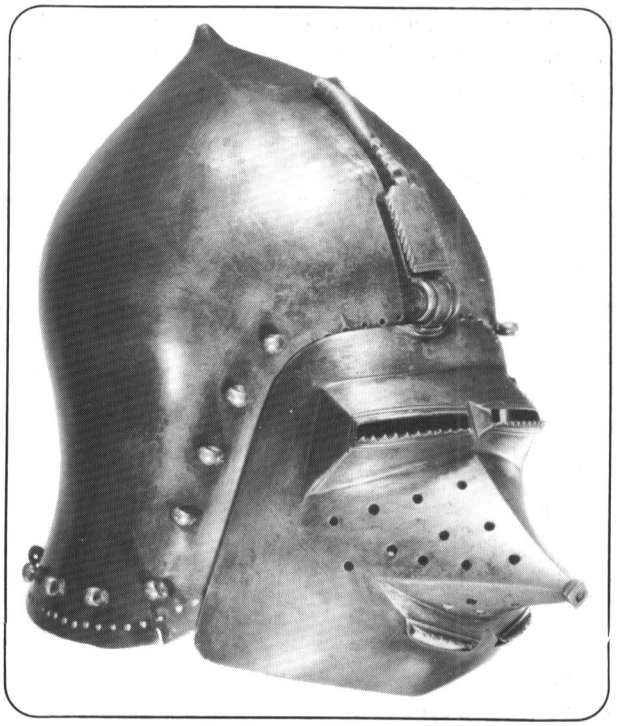
The *wagenburg* was rather like the beleaguered wagon train in Wild West films. The wagons allowed movement of troops; and, when threatened, they could be used to form a defended fortress which would prove a formidable obstacle to attacking cavalry. The *wagenburg* or *gulaigorod* was known in Russia, where it was used to rebuff the Tartars. Wagons carried large numbers of wooden pavises or shields mounted on runners or wheels and furnished with loopholes. The Russians were wary of the mounted Tartars, and later used the *wagenburg* against the Poles who were also strong in cavalry. In the 14th century the Lithuanians used it against the Teutonic Knights. Edward III of England used wagons to defend his camp at Crécy; and a Bohemian general wrote of using crossbowmen behind carts to guard a camp.

Žižka had no chance to perfect the ideal *wagenburg*, faced as he was with the threat of a crusade against him. He commandeered farm carts and other wagons; with few pavises, he ordered posts and chains to be brought to close the gaps between the wagons when on the defensive.

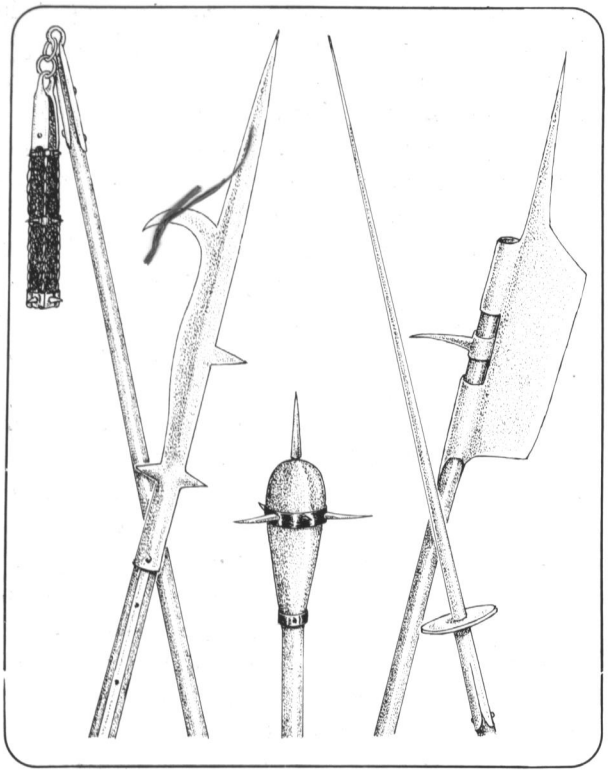
The wagons were drawn by four horses, and women and children might follow the army, travelling with the baggage. To form their laager the teams were drawn into square or circle, the animals being unharnessed and led to the centre. The wagon poles were pushed up above the wagon ahead or removed. Hoardings of hinged planks or vertical palisades were introduced to strengthen the side presented to an enemy, while a plank with loopholes was added under the carriage frame. Wagons were developed with hinged side panels to drop like a drawbridge on the inner side of the laager for access. The wagons were also provided with tools: two axes, two spades, two pickaxes, two hoes, two shovels, lances with hooks, and a chain with a hook for securing wagons together in battle, according to one ordinance.

The men were divided into wagon quotas, variously reported as ten or 20. The Hodetin Ordinance requires each wagon to have two drivers, two handgunners, six crossbowmen, 14 flailmen, four halberdiers and two pavisiers. The men with staff weapons were useful in guarding the gaps between the wagons, using the hooks on their halberds or bills to drag knights from their mounts. Heavy wooden clubs were fitted with spikes; and flails for threshing were studded with nails, or modified by adding lead balls attached by short pieces of chain. The flail became particularly associated with Hussite forces.

The missilemen were attached to the wagon itself, and might include crossbowmen, archers and slingers. One is seen in a Viennese manuscript hurling stones from a wagon. The weapon whose tactical use was particularly developed by the Hussites, however, was the gun. The wagons gave protection for reloading (as with the crossbow), and enabled the barrel to be rested on the planking to improve aim—useful with the larger handguns, which were heavy, and designed to hook over a wall



The *klappvisier* was rarely seen outside Germany. This example, which probably dates from around 1400, is attached to a lug on the brow of the bascinet and secured by a bar which closes over it. The ogival shape of the bascinet appears to be a German feature. The vervelles or staples projecting around the rim are for the attachment of the aventail or mail curtain, and the small holes below are for the laces of the padded helmet lining. (Kunstsammlungen der Veste Coburg)



Various staff weapons in the 14th and 15th centuries developed from agricultural implements. Left to right: The military flail was adapted from its domestic equivalent. The guisarme, probably inspired by the billhook, could be used for slashing or stabbing, while the hook could pull riders from their mounts. The spiked club is a rather crude form of the long-handled 'Morning Star' or *Morgenstern*, which was popular in Germany. The awlpike or *Aalspiess* was fitted with a disc to guard the hand. The early halberd (sometimes called a Swiss voulge) was used to effect by the men of that area, and spread to southern Germany. It may have evolved from a ploughshare fitted to a staff.

to lessen recoil. Nor were handguns alone employed. Slowly Žižka added cannon to his *wagenburg*. Many were mounted permanently on carts, smaller palisade guns or *Tarasnice* being mounted on trestles until wheeled versions appeared in about 1430. Another gun used was the howitzer or *Houfnice*, named after the word for a crowd—*Houf*—and used against advancing troops. Though it is first mentioned in the 1440s, one chronicler asserts that the *houfnice* was in use at Aussig in 1426. Modern estimates suggest that 6,000 men might possess 36 field guns, ten heavy guns and 360 handguns. This was the first time that guns had been used in massed defensive positions, and the effects were notable. The tremendous noise was terrifying in itself, and combined with the flashes and thick smoke to confuse enemy troops. In the years between 1421 and 1427 Žižka re-equipped his forces, adding as many handguns as possible. He was helped by the resurgence of Czech sympathies in many Bohemian towns and cities, which enabled him to obtain access to cannon and handguns.

Each wagon was placed under its own commander and then into a group of ten. Files of 50 or 100 were commanded by a 'linesman'. Infantry were also divided into groups, each 'rota' having 100 men. One captain was placed in charge of the wagons, one in charge of the foot, and a third led the cavalry. At first many riders were mounted on the horses used to pull the wagons, but this was obviously inefficient. The beasts were no match for war horses; were often tired from their work; and, if harmed, caused a shortage of draft teams. Cavalry was used at the critical moment when attacks on the *wagenburg* were faltering. Both Žižka and, after his death in 1424, the former priest Prokop the Great, placed great emphasis on the cavalry counter-attack. Two gaps were left in front and rear of the laager and closed with chains or palisades until needed. At the command the horsemen would charge from the safety of the *wagenburg*. If large numbers were involved they might emerge from the rear and pour round the sides against their retreating foes. The Hussites were always looking for horses. Captured Hungarian light cavalry mounts were brought in, and men were sought who had ridden with knights. In 1420 Žižka used captured German horses to train citizens armed with crossbows to become scouts. As Bohemian lords came gradually to support the Hussite movement they increased the number and quality of the cavalry.

Aeneas Sylvius says that the infantry marched in the middle of the lines, with cavalry out on the flanks. He also recounts how the Hussites would attack frontally with their foot while wagons filled with guns encircled the flanks. Unless the wagons were particularly fast and carried only handgunners it is hard to see how the usual heavy carts could manoeuvre successfully. Shooting even one horse in the team would cause confusion; moreover, much evidence points to the Hussites setting up defensive laagers, preferably on a hill. A church was a useful adjunct; the wall provided a further obstacle to cavalry and the tower made a handy look-out post, as used at Horice in 1423. The Jena Codex of c. 1400

depicts red flags with the emblem of a gold chalice. A later source mentions signal banners, the best colours being black and white. It also refers to trumpets being used to sound the charge and drums to beat a halt.

The *wagenburg* proved effective against almost anything the Empire threw at it. The first anti-Hussite crusade was launched in 1420, when a vast army—including men from all over Europe as well as large numbers of Germans—marched into Bohemia. Failing to take Prague, Emperor Sigismund retired with his disgruntled troops. It was during the second invasion that the Germans and the increasing numbers of Hungarians really came up against the *wagenburg*. At Kutna Hora in 1421 some 30,000 Imperialists (including about 15,000 Hungarians under an Italian *condottiere* called Pipo Spano) faced perhaps 12,000 Hussites. As they advanced the Imperialists used cattle to fill out their front so that they looked more powerful. All morning the Hungarian cavalry made fruitless assaults against the wagons; but at dusk some Kutna Horan Germans slipped into the town, and Žižka found himself surrounded. In the early hours of the morning (22 December) he broke out, using his guns—an early example of offensive artillery.

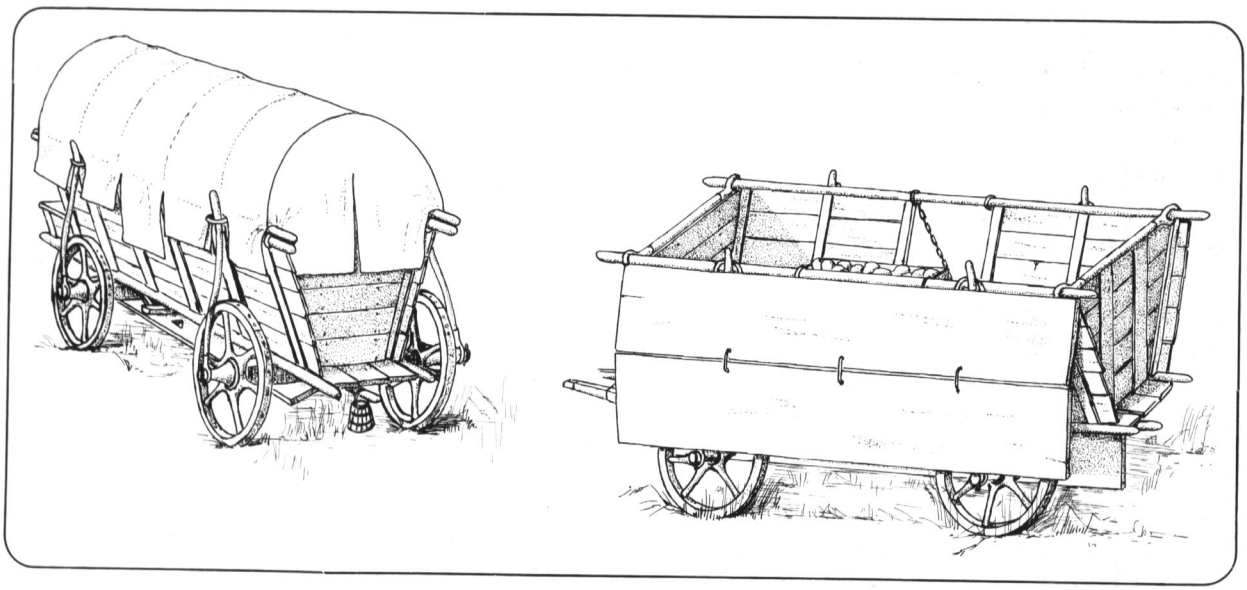
There was incessant border warfare largely between German Silesians and Bohemian heretics. In 1421 thousands of Silesians plundered across the frontier, but withdrew before an army of townsmen.

As their confidence grew the Hussites led offensive campaigns. The first was to Hungary in 1423, when the Hussites travelled largely by night to avoid the swarms of Hungarian light cavalry. Some imperial expeditions did not even come to grips with their enemies. The reputation of Hussite gunners and flailmen combined with superstitious fear of the heretics to make them appear invincible. In 1431 the forces under Frederick of Brandenburg at Domážlice fled before hostilities had even commenced—though it seems likely that the withdrawal of the baggage was misinterpreted by Frederick of Saxony as a retreat.

The Hussites for their part sent out more expeditions across their frontiers, and still returned safely. Bands of a few thousand came to waste Hungary, Bavaria, Misnia and Silesia. After the disaster at Aussig in 1426 the need to arm against invasion was felt as far away as the Rhine. It was at Wintersried in Bavaria in 1433 that the Hussites suffered their first defeat beyond their own borders, leaving about 1,200 dead and 300 prisoner—perhaps three-quarters of their army.

Though the Hussites had seemed well organised, with codes of ordinance and conduct, there was

The *wagenburg* was adapted in Germany from the tactics of the Hussites. The wagons shown here are based on reconstructions by German and Czech historians. Their defensive planking, and that shown slung up under the axles of the left-hand wagon, are described in German ordinances of the 15th century. The canvas tilt might be kept in place during an engagement. The wagon on the right is fitted for defence. The wagon pole has been removed; and on the camp side a panel pivots down like a drawbridge for access. A stoneholder is suspended inside the wagon.



The effigy of Burkhard von Steinberg, who died in 1397. Note the breastplate, which appears to be of beaten metal and displays a prominent vertical rib. Beneath it he wears a leather garment to which is attached a skirt or fauld of iron strips to protect the abdomen. His forearms are guarded by 'stud-and-splint' armour of metal strips attached to leather and reinforced with rivets, which was very popular in Germany and was presumably cheap to produce. His lower legs are covered by iron strips linked by straps. (Roemer-Museum, Hildesheim, Inv. Nr. G 159)

internal unrest. As early as 1421 the Czechs were splitting into the fanatical Taborites, and the more moderate Calixtines or Orebites led by Žižka. On Žižka's death the latter took the name of Orphans. At one time five Hussite armies were at large, including the Prague levy; but only at Aussig and Glatz (1428) did three of these work together. The animosity between the factions came to a head at Lipany in 1434, when the Bohemian League of moderate nobles and Praguers lured out the Taborites and Orphans with a feined infantry flight, allowing cavalry squadrons to cut down the exposed enemy and break into their *wagenburg*. It had taken a Czech army to inflict a decisive blow. Prokop had been slain, and the Hussites never fully recovered.

Catholic Bohemian lords renewed the crusades for seven years from 1467, using troops drawn mainly from Hungary and Silesia under King Matthias Corvinus of Hungary. The 'Hussite King' Georg Podiebrad recruited mercenaries to fight for him, issuing an edict in 1470 for ten Bohemian districts to provide quotas of troops ranging from 350 to 1,000 men. About one-tenth were to be horsemen, with a wagon for every 18 to 20 men.

The Teutonic Knights

Mention must be made of the Order of the Knights of the Church of St Mary the Virgin, better known as the Teutonic Order[1]. Officially founded in the Holy Land in 1199, it transferred to Europe in 1309 after the collapse of the crusader states in Palestine. The headquarters of the Order were now at Marienburg in Prussia, and the energies of the soldiers were transferred—with imperial blessing—to conquering the wild lands east of the borders and bringing the pagan Slavs (principally the Lithuanians) to Christianity. The Order had already taken over heathen Prussia and Livonia in the 13th century, studding the land with blockhouse fortresses to secure it before settling and colonising.

The *Hochmeister* or Grand Master had a number of officers under him, including the *Ordensmarschall* or Marshal, who looked after the horses and the military side of life. Brothers or *Ritterbrudern* wore white surcoats with a black cross, while non-knightly men-at-arms or *Diendebrudern* wore grey surcoats with a tau cross. Twelve brothers lived in each *Komtureis*, which could provide about 100 men. These included *gleven* of cavalry, the men from vassals of the Order (both horse and foot), mercenary units, town militias of German burghers, and native levies of Slav tribesmen. The Order also

[1]See MAA 155, *The Knights of Christ*.

received support from numerous individual crusaders—largely German—who came east to take part in a campaign or *reyser*, often as a sort of 'glory hunt'.

In 1380 there were about 700 brethren in Prussia. In 1410 their greatest army (variously estimated at between 30,000 and 80,000 men) met with defeat at Tannenberg (Grunwald) at the hands of Lithuanians and Poles when, after a bitter struggle in which the reserve was finally committed, the Germans were overwhelmed.

Imperial Problems

During the first half of the 15th century *gleven* remained the normal method of raising imperial troops. Both secular and spiritual lords were expected to supply them. The Electors of Empire such as the Count Palatine, the Duke of Saxony and the Margrave of Brandenburg were usually assessed at about 40 to 50 *gleven* each. Wealthy cities could be heavily burdened (Nuremberg owed 30 *gleven*). In the 1422 muster for raising forces to oppose the Hussites 24 bishops owed a total of 189 *gleven*, plus 51 missilemen who were probably mounted. Twelve abbeys owed 56 *gleven*.

In practice, imperial troops were as difficult to raise as they had been during the previous century. For the 1422 expedition Sigismund was granted 1,903 *gleven* and between 3,000 and 7,000 foot. In 1426 he asked the Diet for 6,000 *gleven* and met with a refusal: even if such a number could be raised, argued the princes, there were not enough resources in Bohemia to feed them. They did agree to try and raise 3,000–4,000 *gleven* if the towns would supply a further 1,000. The latter replied that such a number exceeded their resources; so it was a much curtailed army that marched into Bohemia and to bloody defeat at Aussig.

In 1431 another campaign into Bohemia required 1,000 horsemen each from Bavaria,

A German gunner fires a large handgun. This illustration from Konrad Kyeser's *Bellifortis* manuscript dates from the early 15th century. The gun barrel is polygonal and set in a wooden stock. The gunner is well armoured, though much is obscured by a fashionable tunic. He uses a hot wire to touch off the powder. (Niedersächsische Staats-und Universitäts-bibliothek, Göttingen)

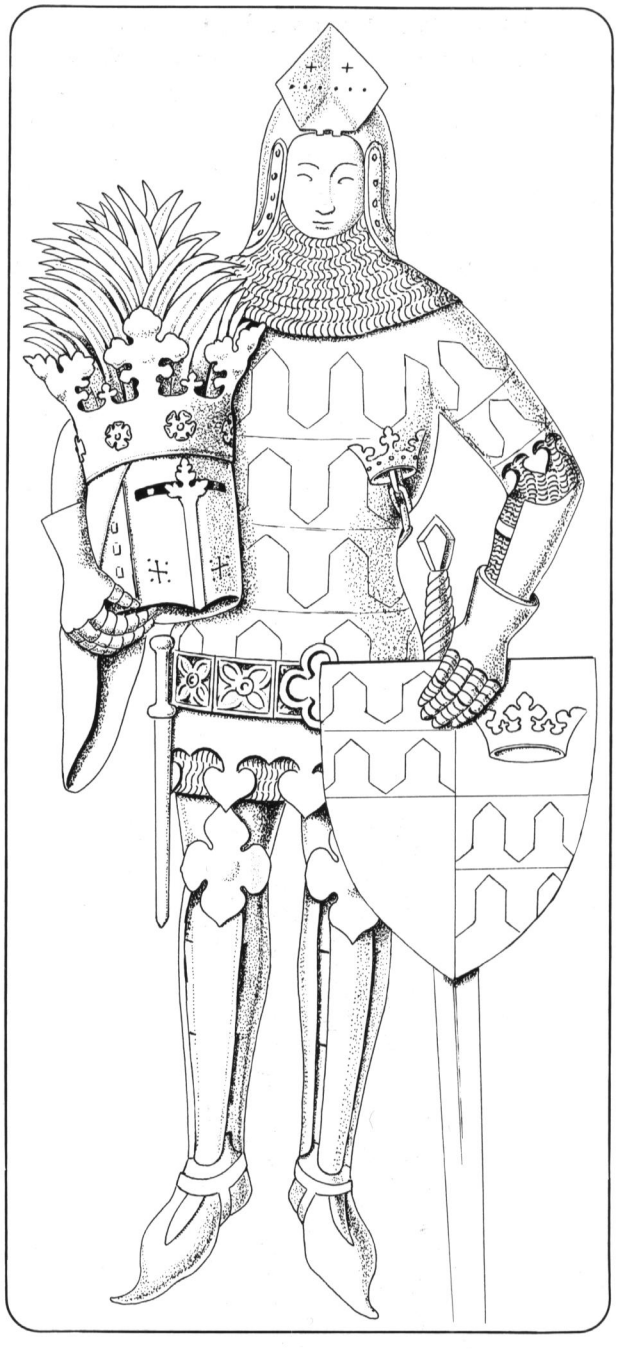
Saxony, Silesia and Austria. A second source listed the contingents as follows:

6 Electors (Mainz, Cologne, Trèves, Count Palatine, Saxony, Brandenburg) at 200 *gleven* each	. . . 1,200 *gleven*
3 Archbishops (Magdeburg, Bremen, Salzburg)	. . . 270 *gleven*
38 Bishops	. . . 932 *gleven*
2 Military Orders	. . . 60 *gleven*
28 Princes	. . . 2,055 *gleven*
4 Provinces of the Low Countries	. . . 500 *gleven*
86 Counts and Lords	. . . 607 *gleven*
29 Abbeys	. . . 89 *gleven*
85 Towns	. . . 1,000 *gleven*
	6,713 *gleven*

To this was added 1,587 *gleven* from Austria, from six towns in Silesia, and from the Grand Master of the Ordenstaat in Prussia, making a total of 8,300 *gleven*.

Impressive though such figures seem, the emperors had constant difficulties trying to secure armies when many nobles were more interested in using the troops inside Germany itself. A tax imposed to try to help raise troops was blatantly ignored by so many that the cost of sending out reminders was prohibitive. When Sigismund became King of Hungary through marriage he found himself obliged increasingly to rely on troops from this kingdom, so much so that in his crusades against the Hussites several battles were fought largely with Hungarians. Similarly, the Habsburgs of Austria found it easier to persuade their own ducal Diet to agree to terms for men, especially when threatened first by Hussites and Hungarians, and subsequently by Ottoman Turks. In 1432 a paid force of 1,000 cavalry defended the frontier.

The reliance on troops from home territories was a sensible idea for monarchs confronted by the indifference of their subjects. In 1444 Frederick III, as King of the Romans, decided to attack the *Ecorchers* ravaging the western parts of the Empire around Strasbourg. Five hundred cavalrymen were expected from the towns, including 200 from Ulm and 50 each from Augsburg and Nuremberg; but the army never fully materialised. In 1467, the year



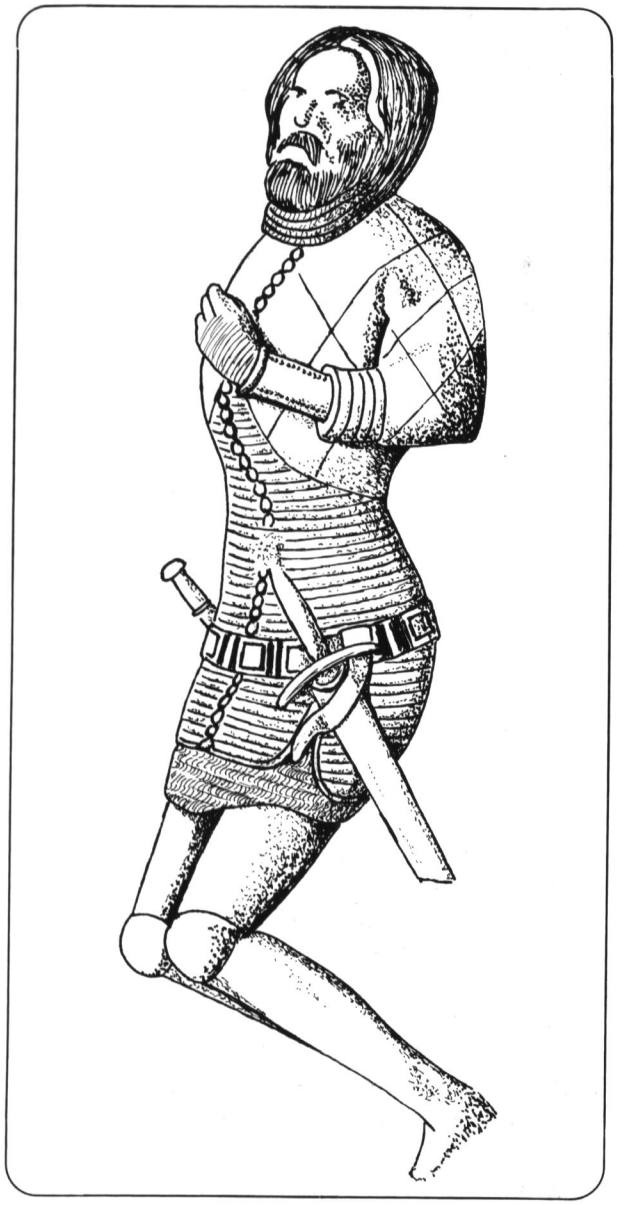
Hartmann von Kroneberg, died 1372. He wears a tight cloth jupon over his armour in the style fashionable in the West, with his heraldic arms (1 and 4 Vair in pale, 2 Gules a crown Or, 3 Gules) emblazoned thereon. His leg armour is of the strip variety; and he has a *klappvisier* attached to his bascinet.

the *gleven* system was abolished, 5,217 horse and 13,285 foot were listed to be raised against the Turkish threat to the borders of Hungary. Bohemia, Moravia and Silesia were expected to add 800 horse and 2,000 foot. Yet the figures do not take account of certain facts. The Duke of Burgundy was unlikely

to send his quotas for lands held on the western marches; far flung, almost foreign areas like Savoy, or the town of Lausanne, close to France, were too remote to bother to comply; and the reaction of the independent Swiss would be questionable.

Some effective musters were achieved. Albrecht II of Habsburg (1438–39) led considerable forces into Bohemia, but met with less success in trying to find men to counter the Turkish threat. Frederick III (1440–93) declared war on Charles the Bold of Burgundy in 1474, and the Imperial Diet at Augsburg ordered the towns to put a quarter of their troops on war footing. According to chroniclers Frederick had 60,000 men when he reached Andernach, and by the time he reached Charles—who was besieging Neuss—his forces numbered 100,000 and included many guns. Whatever the true figure, it impressed the chronicler. However, perhaps unsure of his hastily raised levies, Frederick did not move from his camp across the Rhine. On 23 May 1475 Charles disordered his enemies with his artillery, and skirmished with the Germans: no real advantage being gained, an honourable draw was agreed.

This effigy of about 1376 may illustrate the so-called *Westfelischen lendenire*, a distinctive type of quilted tunic from Westphalia, probably cut in fashionable style.



The Hussite Legacy

The increase in the use of artillery during the 15th century must have been encouraged by the encounters with the Hussites. In 1427 an Ordinance of imperial demands is full of references to the amount of artillery expected:

> 'Item the town of Nuremberg a large stonegun, that shoots 2 cwt, 6 small stoneguns, 12 palisade guns, 60 handguns, 20,000 arrows, 600 fire arrows, and tools as required. Item 6 master gunners.'

Coupled with the increase in artillery was the adoption of the *wagenburg*. It proved of little value against the Hussites but was still in use in German armies in the late 15th century. The *wagenburg* was based in its organisation on that of the Hussites. An Ordinance of 1480 speaks of two lines each of 50 wagons, a line either side of 100 each, and two outer lines of 300. Coloured signal flags were used, largely of red and white, four of them bearing the symbols of a cannon, crossbow, halberd or pike as easy recognition signs. An executioner and gallows accompanied the army; robbery brought the loss of a hand, while deceit concerning the enemy might mean being clubbed through the wagon lanes.

From 1462 comes a description of life in the *wagenburg* of the Margrave of Brandenburg. A thousand wagons in lines were marked by flags on the outer files, the right side having a pennon and being of a different colour. At night the outer line was watched by one quarter of the appointed troops. Guns, arrows, hoes and shovels were placed near the Margrave's tent and that of the master gunner. The linemaster came for the watchword

and any fresh orders for the morrow, and fires were lit a stone's throw from the outer lines. Two hundred men watched each gate by night, 100 by day. Nobody came in or out without the watchword. In an alarm, five men remained with each of the outer wagons and two with the inner, the others dashing to the appropriate place; the cavalrymen, with their supporters, left the grooms to saddle their horses and came on foot, mounting at a convenient moment.

Mercenaries and Maximilian

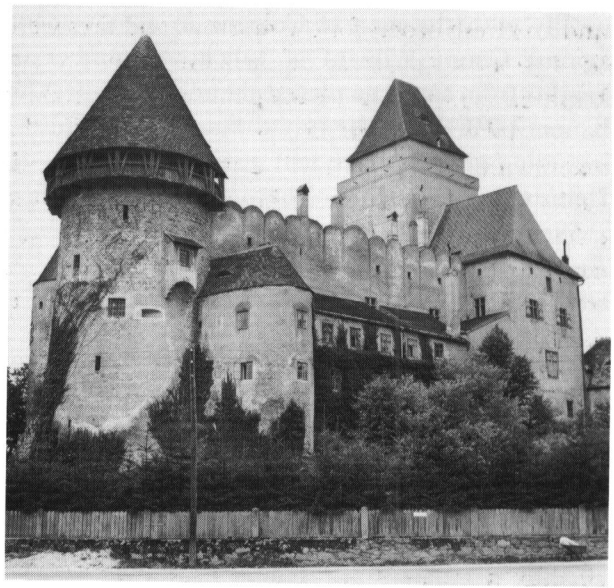
As the 15th century wore on it became usual for *Kriegsherren* or gentlemen of war to hire troops. The authorities engaged 'pensioners' (*Aüssoldner*) to offset the power of the nobility, and paid them a small sum or half wages in time of peace. In Bavaria these men received between ten and 25 florins annually for each horse. The old aristocracy continued to supply the bulk of cavalry contingents and remained in positions of command. By the end of the century the Habsburg Maximilian of Austria (Emperor from 1493) was employing knights as line officers and captains of Landsknechts, allowing a spark of chivalry to remain in his professional armies.

Mail consisted of hundreds of interlinked iron rings riveted to form a flexible defence. On this German shirt of the second quarter of the 15th century the links are flat at the front, and the whole is edged with brass rings. A flat ring at the neck bears the maker's name. A padded undergarment must normally have been worn beneath mail, for heavy blows could break bones or drive links into the flesh. (Reproduced by permission of the Trustees of the Wallace Collection, London)

Maximilian had been given the hand of Mary of Flanders, daughter of the Duke of Burgundy, in 1477. He trained Flemish troops in Swiss pike tactics; and two years later his infantry, fighting for Burgundy, repelled Louis XI of France at Guingate. Short of money, Maximilian disbanded his mercenaries, but moved into Germany where from 1482–6 he recruited Landsknechts from the Rhineland and lower Rhine, trying to allay suspicion with the excuse that they were 'servants of the country'—the literal meaning of their name. Landsknechts were originally free agents, working especially in upper Germany on the borders of Switzerland; in Holstein such men were known as 'Black Guards'.

Maximilian also intervened in the supply and manufacture of arms. In 1483 he ordered 600 sallets, 400 armguards and 1,000 body harnesses, while three years later 950 ashwood pikes were supplied. He set up 'artillery houses' at Innsbruck and a grinding mill at Arbois. However, the Imperial Diet remained generally obdurate in the face of requests for money, forcing Maximilian to look to rich Italian families. He would then employ a colonel to recruit men, furnishing him with a lump sum. Drilled in Swiss tactics, the new armies slowly took shape.

In 1485 5,000 Germans marched eight abreast into Ghent, on foot 'in very fine order'; in 1487 they were victorious against the Venetians at Calliano, and in 1490 they seized Stuhlweissenberg during a Hungarian campaign. From 1488 the new Swabian League assisted with troops, and Maximilian became head of a competent military force which included two regiments of 3,000–4,000 Landsknechts each. The Swiss, meanwhile, again proved successful in swift head-on encounters during the Swabian War of 1499. At Frastenz they surprised the Tyrolese by attacking up a steep incline; and Dornach was the last invasion of Swiss soil until the 18th century. The Swiss now viewed Maximilian's trained Landsknechts with a hostility which was warmly returned.



The Austrian castle of Heidenreichstein lay near the border with Bohemia. Lacking steep slopes, this important fortress made use of a moat, hence the name of *wasserburg* for castles built on such sites. Though begun in the 12th century the castle underwent many alterations; it was besieged by the Hussites, as well as by rebel peasantry in the 15th century. Notice the wooden hoarding on the round tower, which allows defenders to overlook the base of the wall; and the 13th-century watchtower or *bergfried* common in Germanic castles. (By courtesy of the Austrian National Tourist Office)

Mühldorf, 28 September 1322

On the death of Emperor Henry VII two rivals claimed the crown: Ludwig of Bavaria and Frederick the Handsome of the House of Habsburg. After a double election, clashes occurred under the walls of Aesling, which was allied with the other cities in the high Neckar. Ludwig declared himself their protector, and was joined by John, King of Bohemia and by troops of the Elector of Trèves. The Swabian towns were called upon to supply contingents of foot, as were those in the Rhineland. Ludwig marched into lower Bavaria, and soon encountered Frederick on the right bank of the River Inn near the town of Mühldorf.

Frederick is said to have had as many as 30,000 men including not only his own Austrian forces but also numbers of Hungarians and Cumans. Ludwig was perhaps stronger in numbers, and was eager to force a battle as Frederick's brother, Leopold, was about 18 miles away with reinforcements.

Having spent the night of the 21st at the castle of Dornberg, Ludwig decided to attack the following morning. His army was drawn up in four divisions, as was that of his adversary. Ludwig wore a blue surcoat with a white cross, and took position among his Bavarian knights. On the opposing side Frederick commanded personally while his younger brother Henry led another troop under the Austrian banner. The fact that Frederick accepted battle has puzzled later historians. It has been suggested that his retreat was cut off, or that he was overconfident and expected his brother to arrive in time. As it happened, Leopold delayed while ravaging the borders of the Lech, and never arrived to join the fighting. Matters are complicated by the addition of legendary tales to rather obscure evidence.

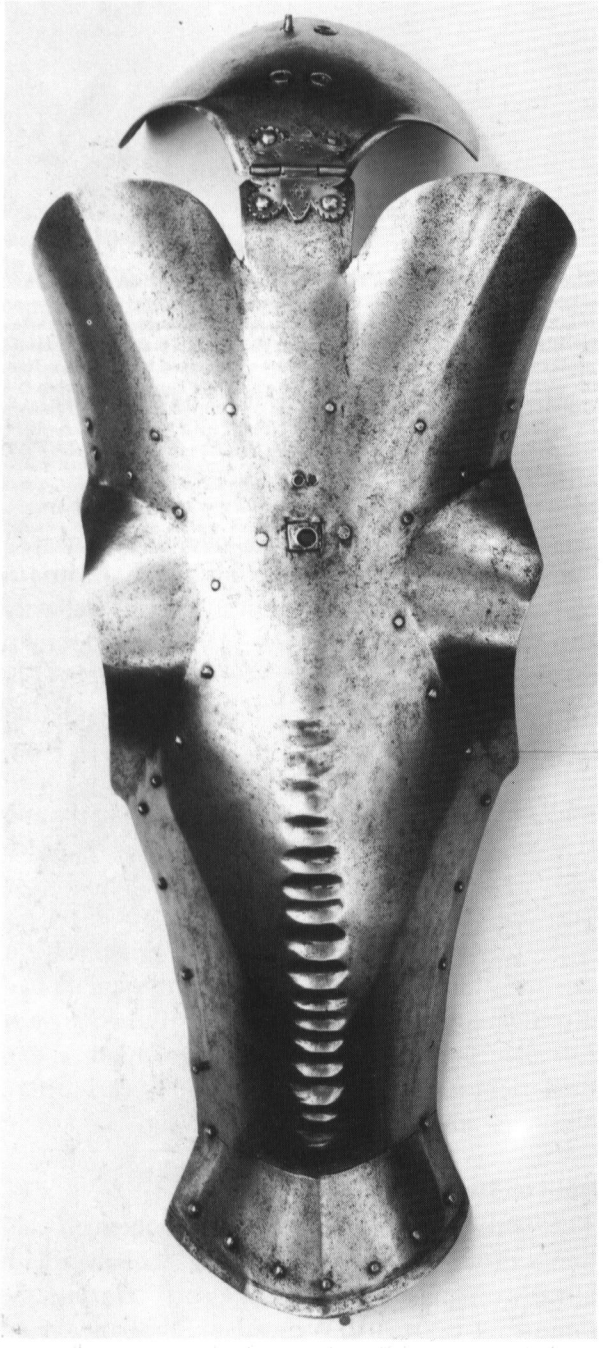
On the left wing of Ludwig's army the Bohemian and Silesian knights of King John clashed with the Austrian and Tyrolian troops of Henry. In the combat that followed Henry was at one point thrown from his horse. As midday approached the Austrians began to push back the forces under Ludwig. It was now that the Bavarian foot were brought into action. Led, according to legend, by a native of Franconia called Siegfried Schweppermann, the burghers of Munich and a number of dismounted horsemen came upon the Austrians and cut a path into their ranks. Ludwig was only narrowly saved from capture. As the battle began to turn the *Burgrave* Frederick of Nuremberg, held in reserve by Ludwig and (so it is asserted) wearing Austrian colours to deceive Frederick, was launched with 500 knights against the disorganised enemy. This proved too much; the Hungarians and Cumans in the rear turned and fled. Frederick refused to flee, wishing to die with honour. A lance thrust felled his horse and he was forced to surrender to Frederick of Nuremberg. One Austrian account asserted that 500 Bohemian cavalrymen had surrendered, but broke parole to assist the *Burgrave*. Austrian losses may have been around 1,300. Frederick was imprisoned for three years before becoming joint emperor with Ludwig.

Baesweiler, 20 August 1371

The persistent struggles between noblemen and towns drove some princes to ally themselves with burghers against common enemies. During the summer of 1371 Duke Wenceslas of Brabant agreed

to ally with the men of Cologne in a movement against Count William of Jülich. A number of knights from Cologne placed themselves under the banner of Brabant. In July a number of infantry, including archers, were sent against Gottfried von Heinsberg, William's brother-in-law.

Wenceslas gathered about 8,000 men by mid-August, including numerous veterans from Brabant, Limburg and Luxemburg. Namur and the Bishopric of Luttich also sent contingents. Having reviewed his men at Maastricht on 20 August, Wenceslas led his army through the lands of Falkenburg into those of the Count of Jülich. He halted near Baesweiler north of Aachen, and began to burn the surrounding area to draw his opponent on. It was not long before he received news that the enemy were approaching. He drew up his army in two divisions, one of 6,000 men under his personal command and that of the Count of St Paul, the other of 2,000 men under Robert of Namur.



William himself soon appeared, supported by Eduard von Geldern and William von Berg, two Counts of Nassau, the Count of Katzenellenbogen and many others including a number of Westphalian troops. The battle which followed opened favourably for Wenceslas, and the Brabantines seemed to be gaining the advantage. However, in his triumph the Duke failed to guard his flank adequately. Eduard von Geldern's division was still dangerous, and he seized his chance to swing his men against the side of the enemy host. Seeing the confusion thus caused, Count William urged his flagging troops back to the press, and the Brabantines broke. Wenceslas held his ground with 300 knights but was finally captured. Eduard lay dead, slain as he raised his visor to drink.

Döffingen, 23 August 1388

Threatened by the powerful Rhennish League of towns, a number of princes began to unite in a league of their own. This included the Count of Württemberg, the Burgrave of Nuremberg, the Margrave of Baden and the Count Palatine of the Rhine. Lesser nobles also sided with the princes, and even French and other foreign lords were invited to join.

The Rhennish League had brought together a host that had been active since January. It plundered and burned the fields and villages of the hostile princes, notably the possessions of Eberhard, the hated Count of Württemberg. Swabia was also badly mauled. The army of the League consisted of 700 or 800 *gleven* and 1,100 to 2,000 infantry drawn

Only men of substance could afford horse armour, and if only one piece was to be used it was usually the chanfron for the head. This German example dates from c.1460; it has flanges to guard the eyes, and a poll plate hinged between the ears. The rivets along the border are for the attachment of a lining. (Reproduced by permission of the Trustees of the Wallace Collection, London)

from the 39 towns which made up its membership, such as Nuremberg, Augsburg, Regensburg and Ulm. In mid-August the League's army advanced towards Döffingen in Württemberg, and the country folk hurried with their property towards the solid church buildings of the town. For a while the church was invested by the invading army, but this was broken off when news arrived that the forces of the League of Princes were approaching. The nobles had raised between 600 and 1,100 *gleven* and a large number of peasants from the County of Württemberg, variously reported as between 2,000 and 6,000.

The two armies came face to face outside the town. The knights of the League of Princes were eager for victory, and attacked in disorder. Their onslaught was held by the townsmen, who apparently handled them severely. Count Ulrich, the son of Eberhard, fell with many other mounted men. Then Eberhard himself rose to the occasion, riding round his disgruntled soldiery and urging on the levies with cries that the enemy were fleeing. At about the same time 100 fresh *gleven* arrived from Bitsch and Rosenfeld. The knights and levies formed together and attacked vigorously, driving back the men of the town League until they broke and fled. The mercenary units from Franconia and the Rhine were accused of being the first to turn and run, while the Count of Henneberg, who led the Nurembergers, was accused of treachery. Others blamed the Burgermeister of Ulm for the defeat, saying it was the flight of his contingent which caused it. It is not known if the peasants who sheltered in the church at Döffingen played any significant rôle in the battle.

The use of knights and peasants together to win a victory might suggest the influence of Swiss ideas, but the latter were not subject to the nobility. For the great town League the battle was a turning point. The confederation was still dangerous, as they demonstrated when Regensburg defeated a force sent by the nobility; but only three months after Döffingen the Rhennish towns suffered a setback when their forces were caught in a defile by Robert, the Count Palatine, with a loss of 150 townsmen.

The Siege of Prague, 1420

The heretical Hussites of Bohemia provoked

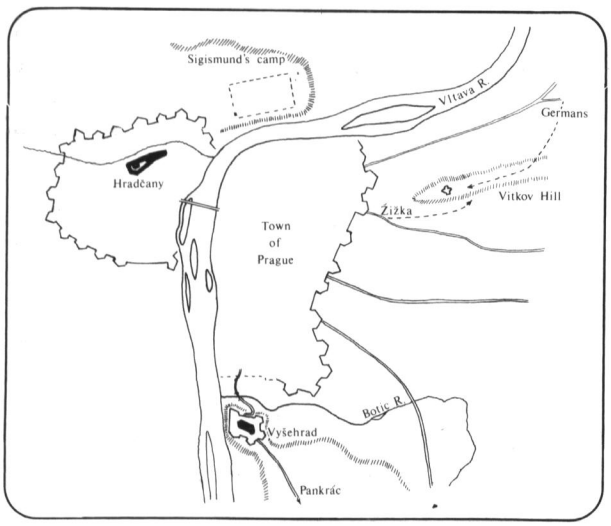
Milanese armour of Elector Palatine Frederick I. Dating from the second half of the 15th century, this is an example of a fine Italian harness '*alla francese*'. It was made in the workshop of the master armourer Tomaso Negroni da Ello, known as Missaglia. The smooth, rounded plates contrast with the fluted German 'Gothic' style. The great bascinet is an export model, as this type of helmet does not appear to have been popular in Italy. (Kunsthistorisches Museum, Vienna)

Emperor Sigismund to organise a crusade against them. The force that assembled before Prague by the end of June 1420 was huge, and included men from so many areas that only about one-third of the army consisted of German-speaking soldiers. One chronicler relates that 33 nations responded to the call; there may have been as many as 80,000 men present, which may have meant a five-to-one advantage over the forces in the city.

The host waited in three camps while the Emperor decided on his plan. To the north-west stood the royalist castle of the Hradčany, and to the south that of the Vyšehrad, held by German troops since the days when colonisers were welcomed in Bohemia. To the east stood an exposed area through which roads from the Elbe Valley entered Prague. There was also a long, narrow ridge here called the Vitkov Hill (Hill of St Vitus). If Sigismund took it he could starve the city into submission. To prevent this Jan Žižka, the Hussite leader, had hastily reinforced the hill. There was already an old watchtower perched on the crest; he added two wooden forts, and dug ramparts strengthened by stones and a ditch. Artillery pieces were placed behind the rampart; but the position still seemed precarious, for each fort could hold only about 30 men.

Sigismund appears to have envisaged a three-pronged assault on the city: an attack across the bridge east of the Hradčany (where skirmishing had already taken place); another from the Vyšehrad Hill; and, most importantly, the seizure of the Vitkov to demoralise the overcrowded township.

Prague in 1420, at the time of the attack on the Vitkov and the siege of the Vyšehrad.



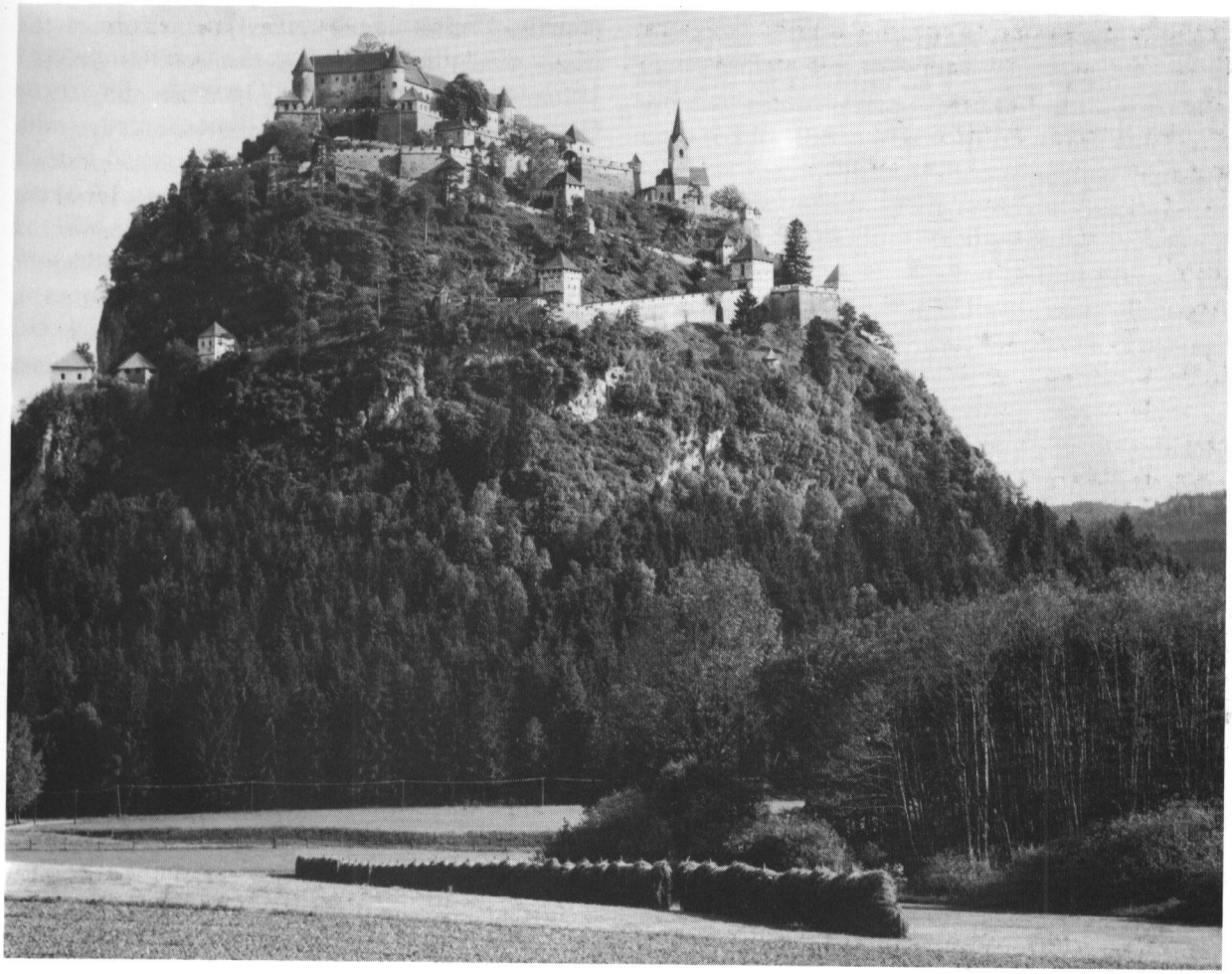
On 14 July 7,000–8,000 Imperialists, largely troops from Meissen and Thuringia but also including Silesians and Hungarians, galloped down to cross the Vltava where the river curved near the village of Liben. They then turned right and made for the easier north-eastern slopes of the Vitkov. Having reached and crossed the moat successfully, they seized the watchtower. At the rampart they were met with vigorous resistance, though this part was held by only 26 men, two women and a girl. One of the women was killed after a display of great courage. The Germans broke in across two walls, but were hampered by the narrowness of the ridge. Nevertheless, both bulwarks were in grave danger. Seeing this, Žižka sent out a strong force of Taborites and Praguers, while he led a band straight against the ridge. The crisis had been reached as his small band strove to hold the position.

At last the main force of Hussites, which had advanced from the south, reached the battle-ground. A priest led them, followed by archers and then by men with spear and flail. They shouted or sang as they came on through the vineyards on the southern slopes, and fell upon the left flank of the Germans. Superstition played its part: the bells of Prague, and the shouts of the fanatical Taborites (who it was rumoured were devil-worshippers) added to the confusion. Panic set in, and the Imperialists gave ground. As they fled back many tripped and tumbled down the steep, rocky slopes. About 300 were killed either by their pursuers or by fatal falls.

The other attacks on Prague were beaten off. All surprise was now lost, and Žižka deepened the moat and rebuilt the earth rampart in stone. The hill was renamed 'Žižkov'.

Sigismund forbade the heavy siege guns to open fire as he considered Prague his own city. There was discord between Czechs and Germans in the army, and disease and fire demoralised the troops. On 30 July the army broke up.

The citizens of Prague soon decided to reduce the royal fortress of the Vyšehrad. On 15 September troops occupied Pankrac south of the castle and threw up earthworks. Further movements on either side of the Vyšehrad effectively surrounded it. Allies

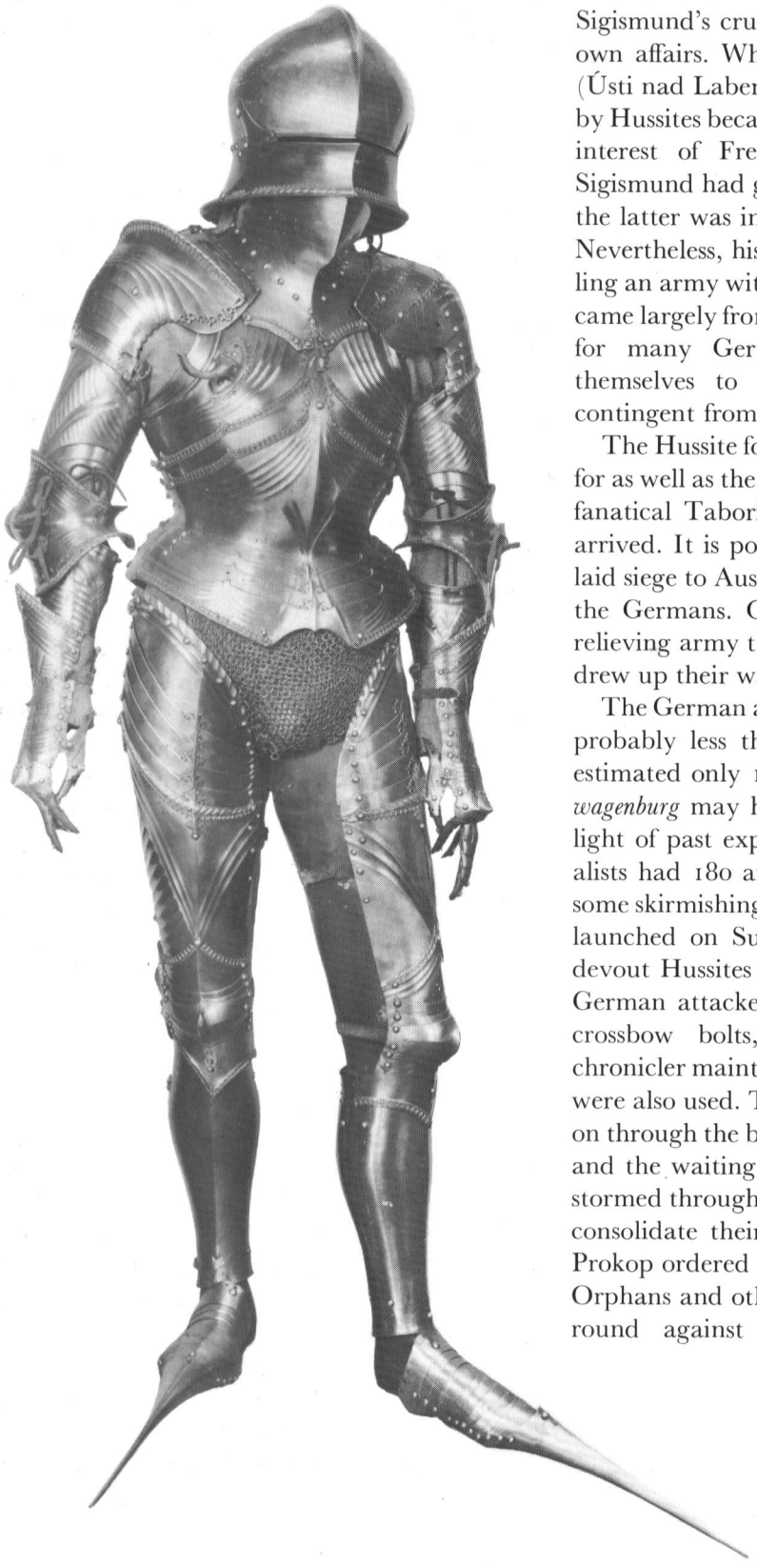


Hochosterwitz in Carinthia. The approaches to hill castles were regarded as the most vulnerable to attack, and efforts were made to strengthen these defences. This could become excessive; Hochosterwitz eventually boasted 14 gates and three ditches. (By courtesy of the Austrian National Tourist Office)

arrived, including men of the Orebite community, and soon three camps defended by ditches threatened the garrison. An attempt to bring supplies up the river failed, and a parley concluded that if help did not arrive by 9 am on 1 November (All Saints Day) the Vyšehrad should be surrendered.

Sigismund arrived on the vigil of the feast day, but refused to attack while expecting help from the Moravians. The latter arrived the same evening, but remained in the woods. An order was sent to the mercenaries in the Hradčany to assault the bridge tower in support of the attack. The next morning Sigismund descended the hill with thousands of men, waving his sword as a signal for the garrison to make a sortie from the Vyšehrad. However, the agreed time for succour having passed, the gates remained shut. Lord Henry of Plumlov, who led the Moravians, counselled caution, but was nevertheless ordered to attack through an area of marshes and fishponds. Hungarians came over the road in support. After an initial setback the Hussites were encouraged by a shout that the enemies were fleeing, and hurled themselves forward with clubs and flails. One chronicler relates that a strong, cold wind was more harmful to the armoured knights than to the lightly armed foot. Praguers and their better-equipped lords chased the Imperialists back, killing many of the 2,000 Moravians as well as many Bohemian nobles who supported Sigismund. The mercenaries in the Hradčany had attacked the Hussite defences, but the message had been intercepted and the Hussites were waiting. Sigismund withdrew to Kutna Hora, and the Vyšehrad capitulated as agreed.

The harness of Archduke Sigmund of Tyrol, made at Augsburg in about 1480 by Lorenz Helmschmied, one of the greatest German armourers. This impressive harness demonstrates the fluted 'Gothic' style, and the preference for long-tailed sallets as opposed to the Italian salade and armet. (Kunsthistorisches Museum, Vienna)



Aussig, 16 June 1426

Many of the battles against the Hussites involved Hungarians rather than Germans, for many German nobles were disenchanted with Sigismund's crusades and more interested in their own affairs. When the important town of Aussig (Ústi nad Labem) on the River Elbe was besieged by Hussites because of its imperialist sympathies the interest of Frederick of Saxony was aroused. Sigismund had granted the town to Frederick, but the latter was involved in the Diet of Nuremberg. Nevertheless, his wife Catherine set about assembling an army with Sigismund's support. The troops came largely from Saxony, Thuringia and Meissen, for many German nobles refused to involve themselves to any extent. There was also a contingent from Lausitz.

The Hussite forces were in considerable strength, for as well as the Praguers and Utraquist nobles the fanatical Taborites under Prokop the Great had arrived. It is possible that up to 25,000 men now laid siege to Aussig, but an assault was repulsed by the Germans. On hearing of the approach of a relieving army the Hussites broke off the siege and drew up their wagons on the slopes of Běhani Hill.

The German army appears to have been smaller, probably less than 20,000 men, and some have estimated only 12,000. The decision to attack the *wagenburg* may have been rather foolhardy in the light of past experience, especially as the Imperialists had 180 artillery pieces in their train. After some skirmishing on the 15th a full-scale attack was launched on Sunday 16 June, a day which the devout Hussites hoped would not be chosen. The German attackers ran into a wall of gunfire and crossbow bolts, arrows and stones. A later chronicler maintained that early wheeled howitzers were also used. The Saxons and their allies pressed on through the blinding smoke to reach the wagons and the waiting flails. At one point they actually stormed through the barricade, but were too few to consolidate their success. At the crucial moment Prokop ordered the counterattack. The Taborites, Orphans and other factions poured out and swept round against the Germans, taking up the

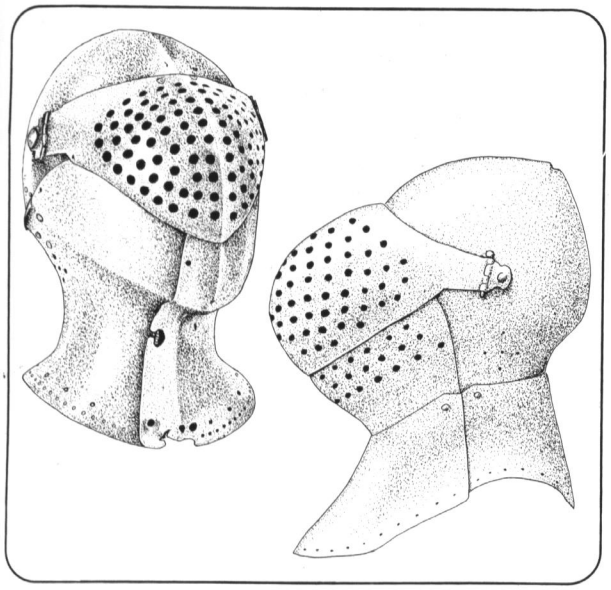
Bohemian cry that their enemies were fleeing. Badly mauled, the Germans staggered back, leaving 3,000 to 4,000 on the field. They fled back through the village of Chabořice pursued by the Hussites, whose Taborite faction were particularly merciless. Many nobles refused to run, but surrendered in the village of Hrbovic; largely because of the earlier German threat to take no prisoners, they were summarily executed.

Aussig was one of the bloodiest battles against the Hussites, German chroniclers citing total losses of 15,000 men. Aussig itself was captured as the garrison tried to escape, and was burned so thoroughly that it remained uninhabited for three years.

Pillenreuth, 11 March 1450

To meet the threat posed by the powerful Albrecht Achilles of Habsburg, the men of Ulm in Lucerne decided to build up their forces in preparation for a confrontation. They recruited footsoldiers from Nuremberg, as well as a number of nobles from Germany and Bohemia; and Swiss troops also came to add weight to the town forces. Hans Mullner had been instructed to recruit 600 men, but ended up with 1,000 mercenaries in the pay of the burghers. The Nurembergers were put under the command of a Swiss officer, Henry of Malters. They were mustered for the march with the other allies plus burghers and peasants. Malters stipulated that each man should have a good crossbow, handgun or halberd. He disliked 'little evil spears' and preferred the soldiery to use the halberd or long pike, as his own Swiss infantry did. Each man was also requested to carry a sword, axe or knife. Together with a *wagenburg* the forces set out, a total of about 2,800 foot and 600 horse.

German helmets of about 1440. The great bascinet on the right is fitted with plate bevor and gorget and was buckled down to the armour. The armet on the left was slow in ousting the bascinet, and did not become common in Germany until the end of the century. It fitted more closely and opened out from the centre towards the sides for access. The hinges are protected by metal flanges.



The army plundered their way via Hembach, hoping to cross the Rednitz, and finally came upon the forces of Albrecht Achilles, who advanced to attack. There was much shooting from both sides, but neither side could gain an advantage and the combat was broken off.

Shortly afterwards Albrecht sent a message to the town forces inviting them to come and fish in the pond at Pillenreuth. On 11 March the challenge was accepted, and 400 or 500 cavalry together with 4,000 footsoldiers marched out. Their ranks included mercenaries in the service of the town: men like Kug von Kaufigen who later won fame as a robber prince, and Henry von Plauen who led the Nurembergers. When they reached Pillenreuth a wedge was formed. Henry challenged five knights to form the point, with three ranks of knights behind and men-at-arms in the rear to form a solid mass of 300 men. The Nuremberg foot and missile troops supported them. When the forces of Albrecht Achilles met the town army they wished to destroy the pikes of the Swiss contingent first. Their wish was not granted: and the mounted troops were beaten back and routed.

Seckenheim, 30 June 1462

The Battle of Seckenheim was one of the results of the perpetual feuding and power-seeking which wracked the Empire. Elector Frederick, the Count Palatine of the Rhine, confronted the Margrave of Baden, Count Ulrich of Württemberg, and the Bishops of Metz and Speyer, who were laying waste his territories. Having raised a force of about 1,100 horse and 2,000 foot Frederick marched out and surprised his enemies in an angle between the Rivers Rhine and Neckar. Their position was the more dangerous because Frederick had fielded

numbers of provincial levies and outnumbered the forces of the allies.

At first the two sides seemed evenly matched, and the allies put up a spirited resistance. However, they then came up against the wall of footsoldiers who stood in square formation with long pikes, and who included in their ranks a number of Swiss mercenaries. Against these troops the cavalry could make no headway, losing their mounts as they strove to cut a path into the ranks. Thus disorganised, they were attacked by a fresh squadron of Palatinate knights, and were soon routed. The allies are said to have lost as few as 45 men in the action, the Count Palatine only eight. The Margrave of Baden, the Count of Württemberg and the Bishop of Metz fell into captivity, the Margrave and the Bishop both badly wounded.

A military camp, as depicted in the late 15th-century *Mittelalterliches Hausbuch*. The wagons in the outer line consist of wheeled shields with a cannon mounted in the centre section. One wagon has its doors open to reveal the artillery piece. The second line contains supply wagons. The Imperial eagle, black on a yellow ground, flies above the camp. Individual tents bear the arms of their owners. A makeshift gateway of wattle and timber can be seen at lower left. (Bodleian Library 247139 c 4)

In the late 15th century many castles were constructed to guard against the threat from the Turks, especially in areas like Bavaria. Burghausen on the Salzach included six strongholds erected along a mountain crest. (Embassy of the Federal Republic of Germany)

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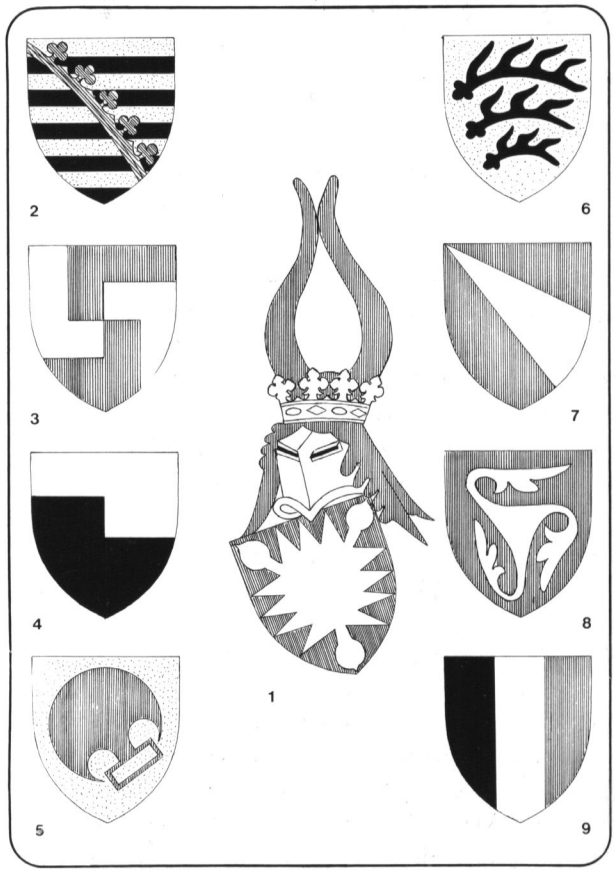
The Plates

A1: Knight, early 14th century
This horseman, based on an illustration in the *Manessa Codex*, is covered from head to toe in mail. The sleeves end in mail mittens; when necessary, the hand could be pushed through a slit in the leather palm. Over his armour he wears a heraldic cloth surcoat, and the arms are repeated on horse trapper and banner. The shape of the latter is typical of the period. Winged crests were rather popular in Germany, and crested helms remained in use on the battlefield longer than in many areas of Western Europe.

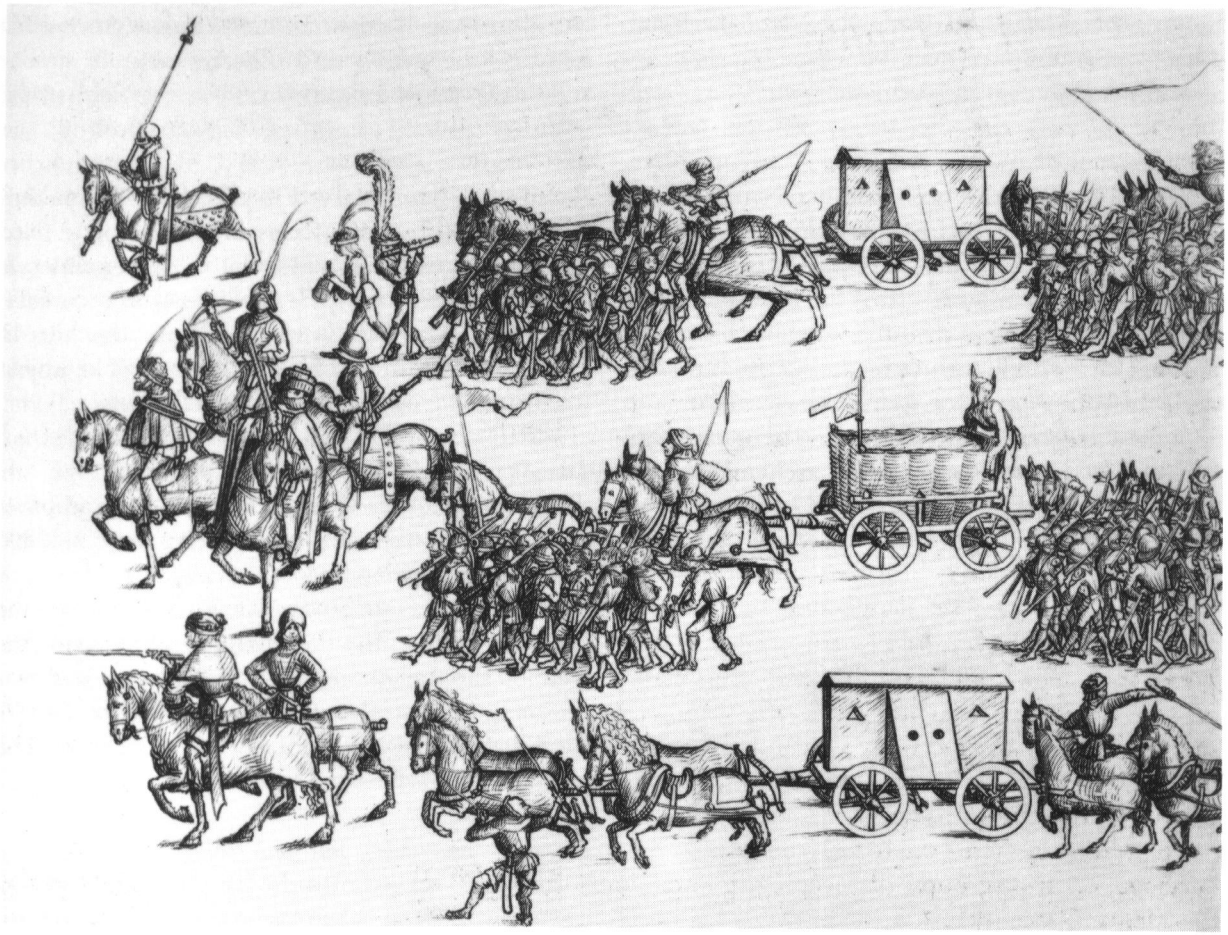
A2: Infantryman, c.1300
The coat-of-plates first appeared in the 13th century, and at this date remained substantially unchanged. The front was lined inside with plates, and the whole thing was put on over the head like a 'poncho'. It was secured with buckles and ties over the back flap. This man's throat is protected by an aventail of mail laced to the brow, and his head by a 'kettle hat'. The figure is reconstructed from the carvings of two groups of sleeping guards in Constance Cathedral.

A3: Crossbowman, early 14th century
The crossbow had been popular in the Empire since the 12th century, and the famed Genoese had their home town within the imperial boundaries. This crossbowman—from the *Manessa Codex*—wears a coat of scale armour, which could have been made from horn or leather as easily as metal. The short sleeves of the mail reveal the sleeves of his quilted undertunic, which cushioned the shock of blows. Under his mail hood is a quilted arming cap, and perhaps even an iron skull cap. His weapon has a bow of horn and is spanned by slipping the cord over the belt hook, and placing the foot in the stirrup.

B1: Albrecht von Hohenlohe, c.1325
The effigy of this knight reveals an armour of small plates attached to a leather backing and worn under a short surcoat. We also see the use of chains to secure weapons, helm or shield from loss in battle, a feature which became very popular in Germany. Albrecht uses one chain to his dagger and a second to his helm, the chains being fixed at the other end to one of the plates beneath his surcoat. Another common feature of German armour is the bretache or flap of mail at the chin; this was hooked up to the



Some German coats-of-arms display certain variations on those in use in England. A selection is illustrated here; solid ink denotes black tincture; vertical lines, red; diagonal lines, green; speckles, gold; plain white, silver:
(1) Arms of the Counts of Holstein. This zig-zag type of border was called a *Nesselblatt*. Horns were a common crest, and some ended in trumpet-shaped openings. Crests were popular, and tended to last longer than in many other countries. The crown was often appropriated by lesser lords, but if it was not worn then the wreath seen elsewhere was usually discarded, so the crest ran straight into the cloth mantling.
(2) Arms of the Dukes of Saxony. The crown is known as a 'crancelin'; the bars might start with black at the top instead.
(3) Arms of Cottendorf—a continental type of quartering.
(4) Arms of Lancenegg—a *Stufenschnitt mit einer rechten Stufe*.
(5) Arms of Frankenstein—a *Wolfsangel*.
(6) Arms of the Dukes of Württemberg. Antlers were also popular as a form of crest.
(7) Arms of Kirneck. A pile might be turned at an angle, as here.
(8) Arms of Vierdung.
(9) Arms of Tietel. Tripartite divisions are often encountered; this version is 'tierced in pale'.



The army on the march, from the *Mittelalterliches Hausbuch*. The supply carts are flanked by lines of artillery wagons. In each case the nearside rear horse is provided with a saddle for the driver. A trumpeter accompanies the vanguard, which includes lancers and a mounted crossbowman. Drum and pipe lead contingents of crossbowmen and handgunners. (Bodleian Library 247139 c 4)

brow of the helmet to give partial protection to the face.

B2: Otto von Orlamünde, c.1340
This Bavarian knight wears a coat-of-plates in the form which had evolved by the mid-14th century. His effigy shows distinctive metal strips riveted to a foundation of leather or canvas, and it is possible that some of these coats had the plates attached externally. In German-speaking lands many warriors had by this date discarded the surcoat. German defences of metal strips fixed to leather protect his forearms.

B3: Infantryman, mid-14th century
A particularly voluminous surcoat distinguishes this warrior, reconstructed from a figure in Strasbourg Cathedral. His mail coat and forearm defences are supplemented by leg pieces. His shield is of the old, circular type. He carries a falchion; the heavy single-edged blade lent great weight to a blow.

C1: Günther von Schwarzburg, c.1345
This is a good example of 'stud and splint' armour, in which the strips used to guard the limbs are reinforced by rivets, which also cover his shoes. It is doubtful if at this date the helm was used in battle; his splendid crest was probably relegated to the tournament field, while he relied on a bretache when in action. Note that the lion on his shield is repeated all over his surcoat. His effigy is in Frankfurt-am-Main Cathedral.

C2: Infantryman, mid-14th century
An open-fronted surcoat reveals a coat-of-plates, with the upper strips worn externally. Mail gauntlets are here provided with separate finger

stalls and a small plate over the back of the hand. Thick leather strips protect the wrists. His shoes are armoured with overlapping scales.

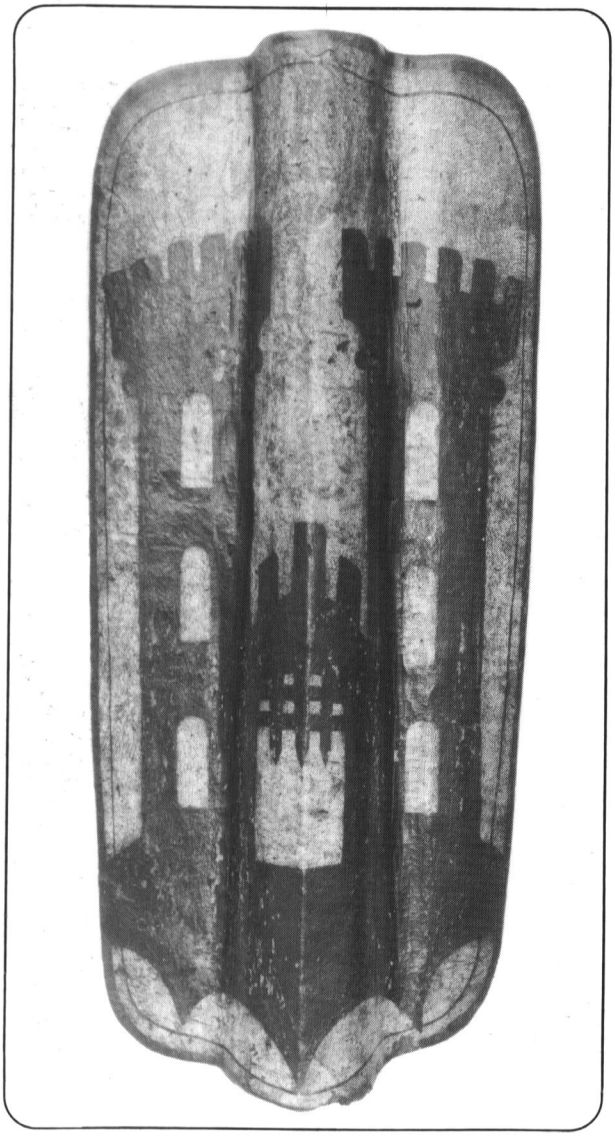
C3: Cuman auxiliary, mid-14th century
Hungarian troops had been seen in German armies in the 13th century, and were employed by various rulers throughout our period. Cumans were men of Asiatic stock who had settled in Hungary. The basically central Asian costume worn by this figure, who is based on miniatures in the Képes Krónika, could also be worn by native Hungarians, and remained largely unaltered until the early 15th century. In his rôle as a horse archer this man carries a recurved composite bow of horn and sinew in a bow case. Hungarian heavy cavalrymen often wore coats-of-plates and other armour in similar style to German knights.

D1: Knight, c.1370
Based on a figure carved in the choir of Bamberg Cathedral, this warrior carries a breastplate fixed externally to his coat-of-plates. His helmet is provided with an early form of *klappvisier* secured at the brow. The belt is worn low on the hips in keeping with the prevailing fashion. The shield illustrates the cut-out for the levelled lance.

D2: Swiss knight, second half of 14th century
The flamboyant dress of this knight is an example of the German taste for long sleeves and oak-leaf edging, which gained in popularity in the early 15th century. A separate breastplate is strapped over the surcoat. Notice the lance rest: to prevent the weapon slipping on impact the ring on the butt was jammed against this rest. The Milanese helmet carries a *hundsgugel* style of side-pivoting visor. The mail aventail is hidden by a decorative cloth cover.

D3: Bohemian archer, late 14th century
Although absorbed into the Empire, Bohemia was essentially Slav in culture—hence the Eastern taste for a bow case and scale aventail. The bow, however, is a wooden 'self' pattern of Western type, rather than a composite, recurved Oriental weapon. This archer is very lightly protected, though the Bohemian bible from which he is taken also depicts archers in plate armour. The accession of Charles IV to the imperial throne may have helped spread the use of such armour.

E1: Knight, c.1420
Many effigies of this period depict various pieces of armour worn over or under a rich tunic. This figure, based on the effigy of Hans Haberkorn in Mainz



A late 15th-century pavise. These were made of wood covered with leather, and are often surprisingly light in weight. Such shields were introduced from Bohemia, and varied in size from the type shown here, which is 103 cm high, to large shields which covered a man. They were used to protect archers in the field, when they were propped up by a stake at the rear, but small ones were also used as hand shields by infantrymen. The reverse was furnished with straps to sling the pavise over the back when on the march. The castle motif depicted here is black on a white or yellow ground. (Reproduced by permission of the Trustees of the Wallace Collection, London)

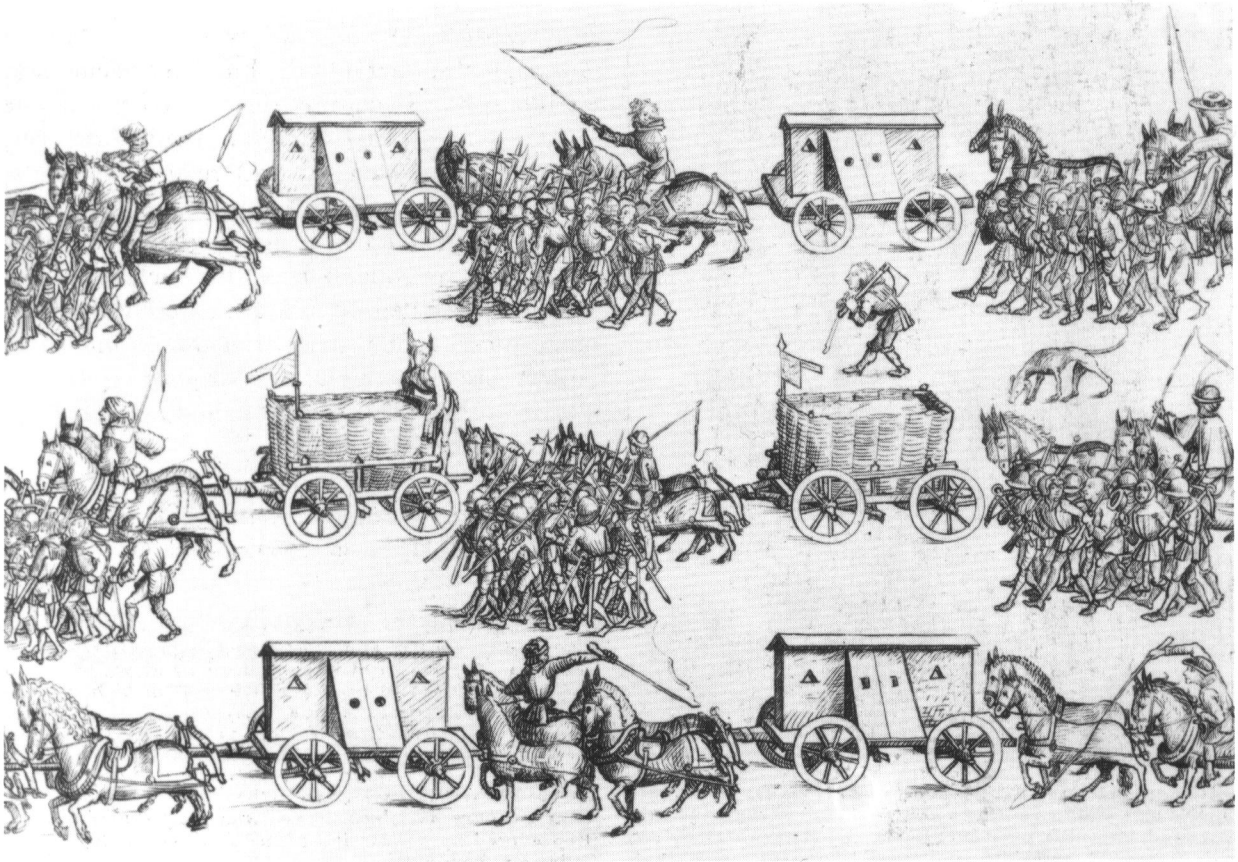
Cathedral, wears a skirt of scales more commonly seen in the eastern half of the Empire. Hardened leather defences protect the upper legs while his feet are unprotected. This latter feature is often encountered. His bascinet is fitted with an old-fashioned *klappvisier*.

E2: Handgunner, first half of 15th century
This man is a Hussite, but could equally be a German gunner. He is protected by a thick padded aketon over a mail coat and also wears leg armour. Small plates cover the front of his shoes, and his kettle hat is fitted with a nasal. His 'pistola' is one of the lighter hand guns and can be aimed more steadily by resting the barrel in the cut-out of his shield. Bullets and powder are carried in a bag, and a slow-match fires the charge. The manuscript source actually demonstrates how a second man might operate the match.

E3: Hussite flailman, c.1425
Hussite armies were notorious for their skill with the military flail. This man has come in response to the call for national defence and is unarmoured, relying on the *wagenburg* for protection. The fanatical courage of these men combined with the use of massed gunfire to make their lack of armour irrelevant.

F1: Knight, c.1440
Taken from the altarpiece of Conrad Witz at Basle, this shows a warrior in complete 'white' or uncovered harness. The characteristic box-shaped breastplate or *kastenbrust* is a feature of German armour of this date, but went out of fashion after about 1450. The long skirt of hoops or 'tonlet', so noticeable here, may suggest that the knight is dressed for foot combat only. His sword and dagger scabbards are stapled directly to the skirt. A great bascinet is buckled down on to his armour. The pin

Details of troops marching with their *wagenburg*. The contingents are separated into groups containing missile weapons and those carrying staff weapons. The latter include spears, poleaxes, early halberds and hammers.There is a lack of bows amongst the missile men, and handguns outnumber crossbows. Armour is not widely used, though most have a helmet. There is no attempt at any regular marching order. (Bodleian Library 247139 c 4)



which allows removal of the globular visor is covered by a rondel at the pivot point.

F2: Gunner, mid-15th century
Taken from a German 'firework' book, this man is dressed in civilian clothes: a padded doublet and hose tied to the hem with thongs known as 'points'. He carries an Italian sword fitted with a finger guard, and also a fine dagger. Leather bellows were used to maintain braziers for hot wire and slow-matches.

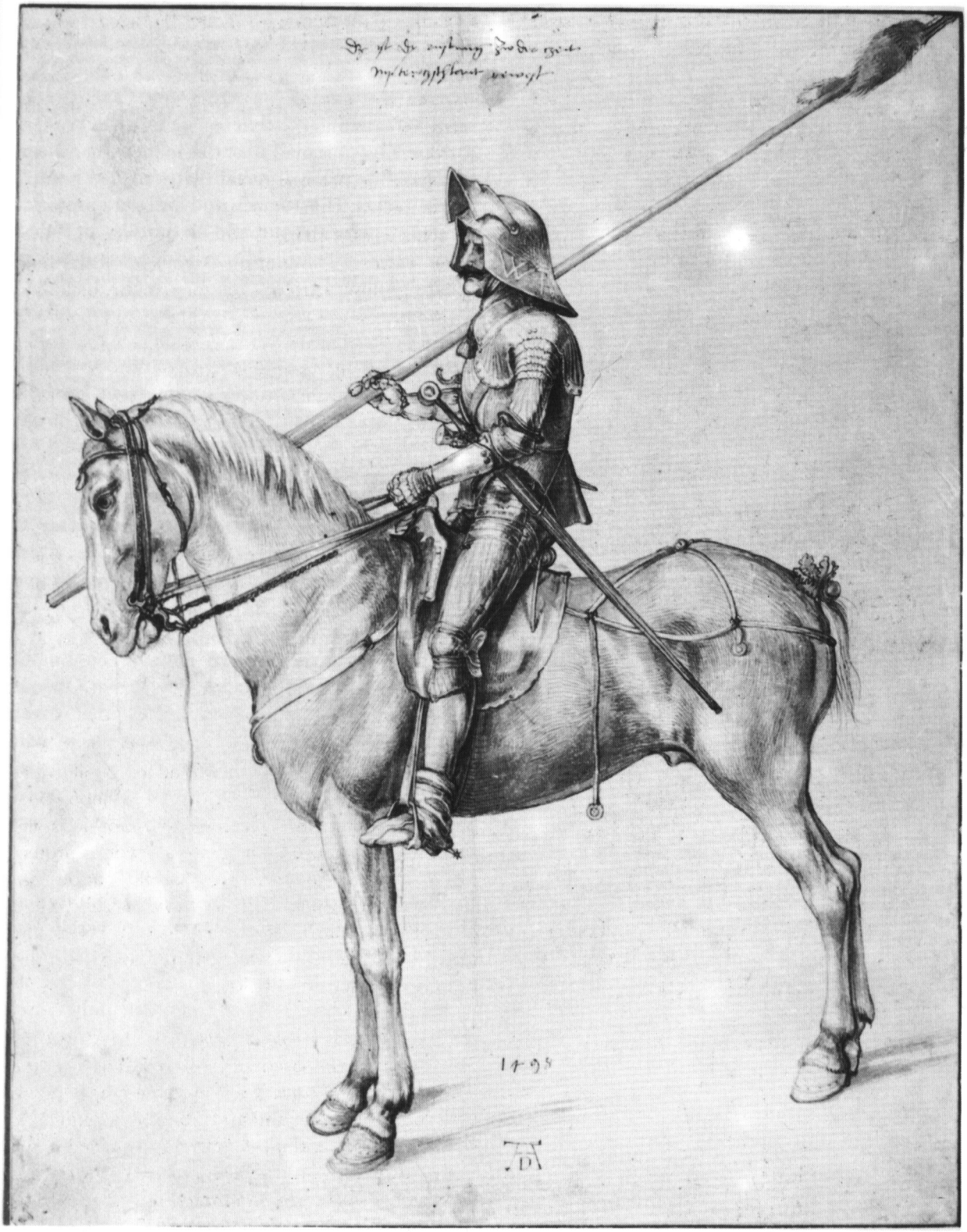
A knight of about 1450. Though armour was often shown uncovered at this date, some preferred to display their heraldic coats.

F3: Swiss mercenary, mid-15th century
The Swiss were sought after as mercenaries because of their successes in battle against the Austrians and Burgundians. The Berne Chronicle of Diebold Schilling shows various types of armour, including brigandines and breastplates. This man is clad in a mail shirt and wide-brimmed kettle hat. A short Swiss sword hangs at his side, and he carries a halberd—a fearful weapon with which the Swiss were adept.

F4: Crossbowman, mid-15th century
Like many medieval soldiers, this man wears whatever armour he can lay hands upon. His cap is faced with numerous iron scales. He carries a powerful steel bow which is spanned by means of a cumbersome windlass. Incendiary bolts are wrapped in inflammable material, to fire palisades and roofs.

G1: Knight, c.1485
A fully armed knight riding a barded horse. This harness, preserved in the Wallace Collection, London, is from the Landshut workshop. The pieces are fluted in typically 'High Gothic' style, and include a visored sallet with a bevor to protect the chin and mouth. The saddle cantle has supports, while the front is faced with steel to protect the loins. The warhorse is given the maximum practical protection, and long spurs are needed to reach the flanks.

G2: Mounted crossbowman, second half of 15th century
This figure is based on illustrations in the *Mittelalterliches Hausbuch*. For protection he depends on a short mail shirt and an Italian breastplate. He wears fashionable thigh-length boots turned down at the knees, revealing a dagger stuck in the top. His crossbow has a bow of laminated horn; it could be covered to protect it from rain. To bend the cord he has a cranequin, which could be used on horseback or on foot; and his bolts are carried in a rigid quiver faced with unshaved hide.



An armed knight, drawn by Albrecht Dürer and dated 1498. He wears fluted armour and a visored sallet; a short jerkin partly covers his torso. His lower legs rely on boots for protection. His lance bears a fox brush behind the head, and oak-leaves and a bell are fixed to the horse's tail. Note his 'seat'—he almost stands in the stirrups in a built-up saddle; this brings his centre of gravity forward, the better to withstand the shock of impact. (Graphische Sammlung Albertina, Vienna)

Armour for Maximilian I. Made in the style of Lorenz Helmschmied in about 1500, this half-armour is no longer in the fluted 'Gothic' fashion. The sallet is replaced now by an armet. There are numerous ventilation holes in the helmet, and the gauntlets are finished in similar fashion. (Kunsthistorisches Museum, Vienna)

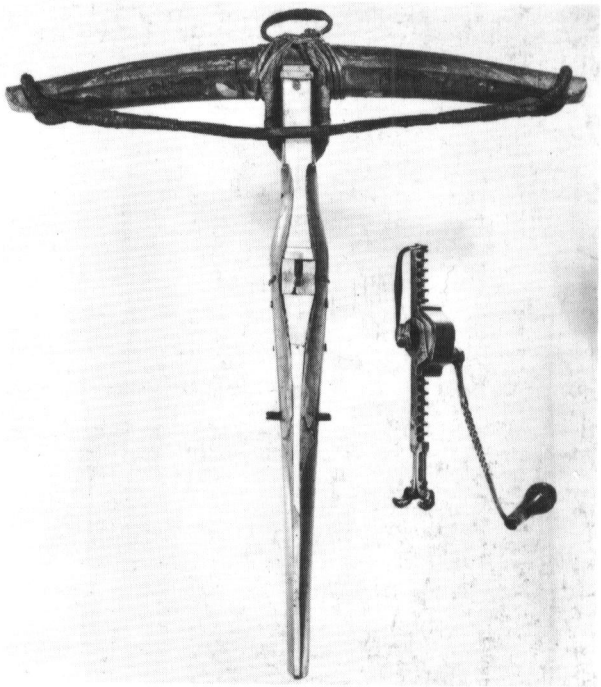
G3: Flemish mercenary, second half of 15th century
Maximilian recruited numbers of Flemish pikemen for his wars as 'King of the Romans', and others were in the pay of German towns. The armour worn here is similar to that seen in much of Western Europe. Over his mail shirt this infantryman wears a brigandine of small metal plates riveted inside a canvas jacket. His stomach and limbs are protected by Italian plate armour, and his head by an Italian sallet. He carries in addition to his sword a long Flemish knife.

H1: Knight, c.1500
Gothic armour began to give way at the turn of the century to a more rounded style which has been dubbed 'Maximilian'. This form flowered during the 16th century, and the example illustrated is a forerunner of this style. The headgear is a close helmet or armet. The leg pieces have been discarded so that the wearer can fight on foot—a trend in its infancy at this date, but which accelerated later as firearms became more effective.

H2: Infantryman, c.1500
A soldier from the western part of the Empire reconstructed from the sculpted figures at Obernai church near Strasbourg. A slashed doublet reveals mail sleeves beneath, while a breastplate is worn overall. The gauntlets have a single plate to guard the back of the hand. The visored sallet is North Italian. He is armed with a poleaxe and a sword.

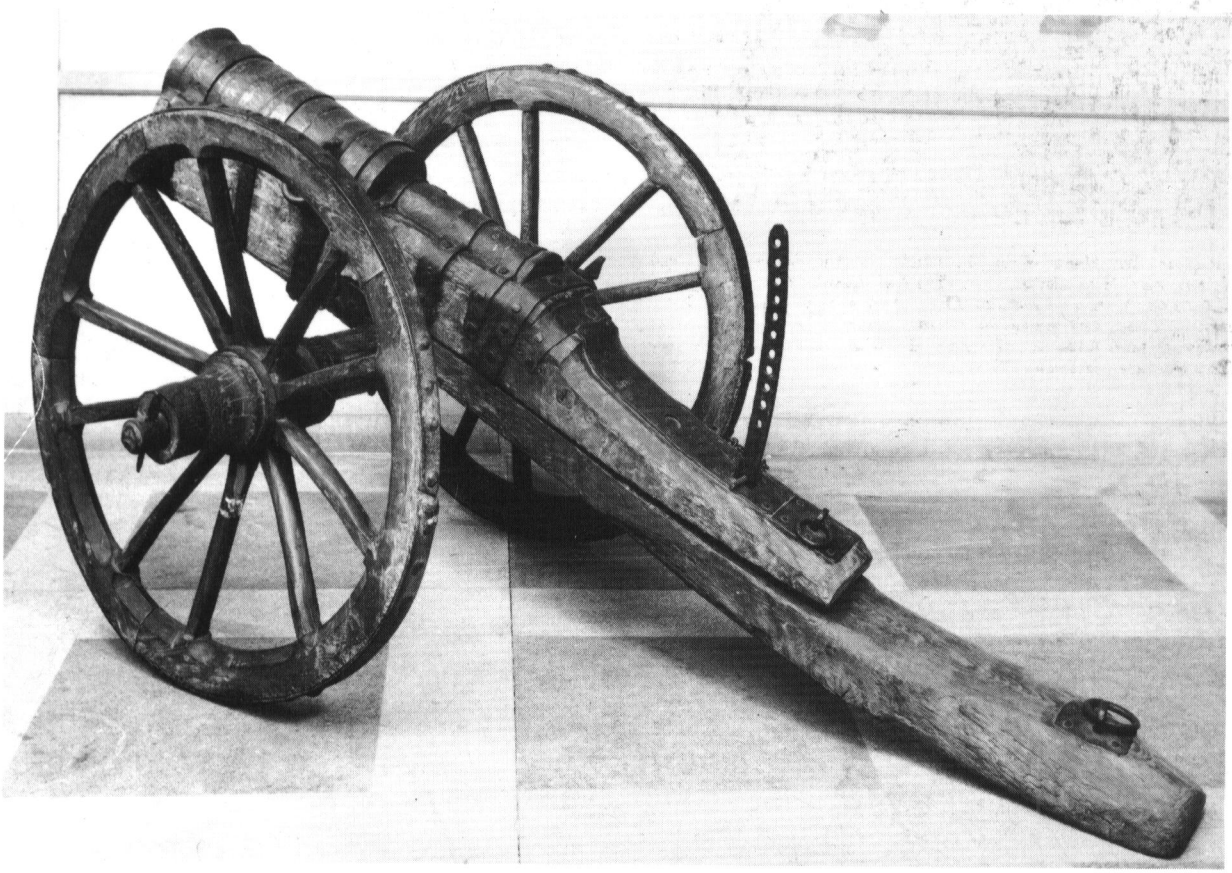
H3: Handgunner, c.1500
Completely unarmoured but wearing gaudy and extravagantly cut clothing, this figure heralds the approach of the Landsknecht era in the 16th century. His arquebus is no longer fired by a hand-held match: it is fitted in a serpentine, and lowered on to the powder by a trigger.

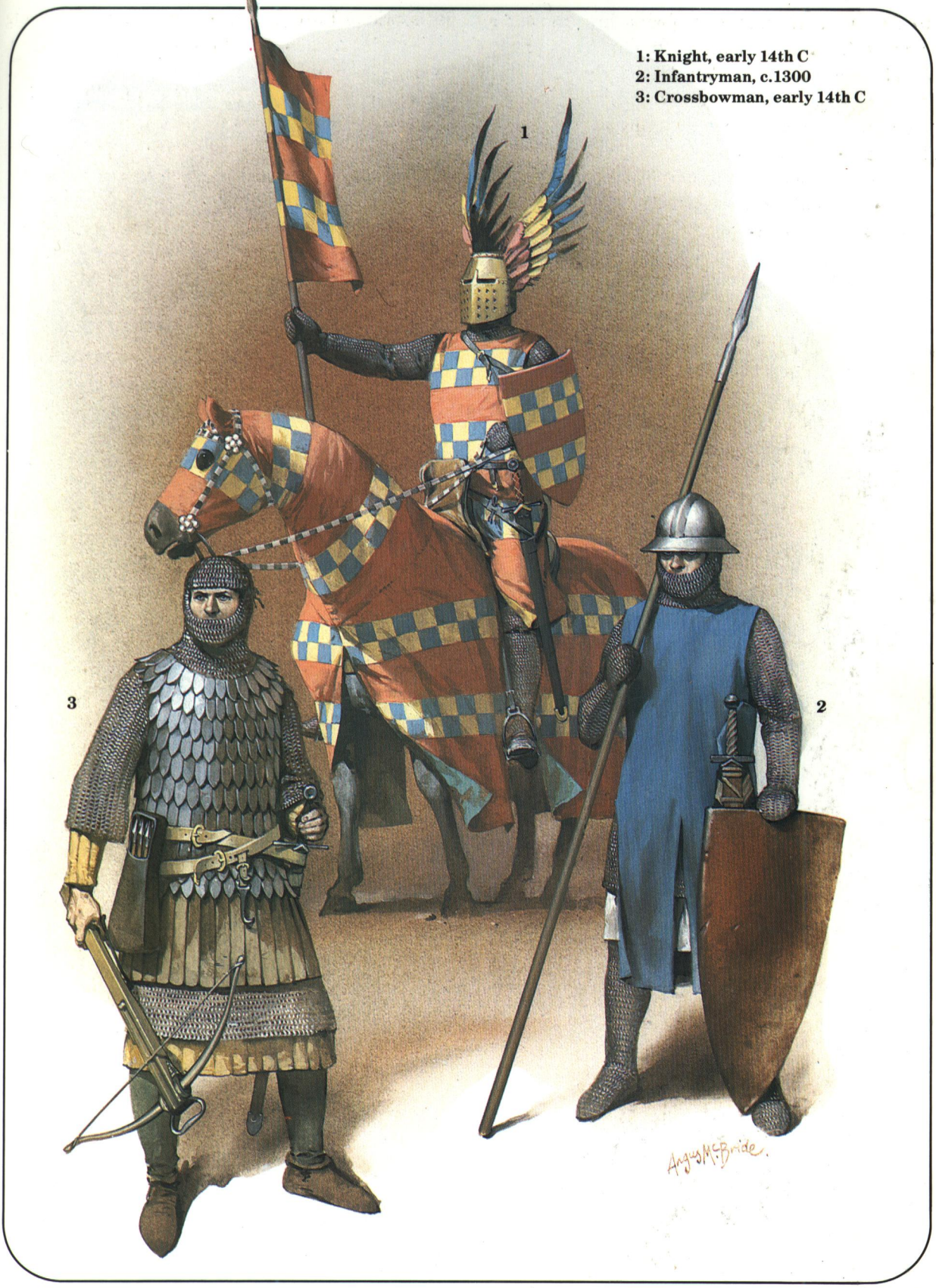
A crossbow and winder dating from the end of the 15th century. The bow is composite and covered in parchment, the tiller is inlaid with horn, and the cord is original. The use of the cranequin was a popular method of spanning the bow in Germany: with the winder looped over the tiller against the two lugs, the claw was drawn back by a ratchet mechanism. (Glasgow Art Gallery and Museum)



Gunpowder was known in Germany as early as the first half of the 14th century, though a manuscript reference to the invention of guns by a German monk has been shown as a later insertion. A later 14th-century chronicle refers to guns at the siege of Metz in 1324, and in 1331 a German army was using '*vasi*' or '*scioppi*' at the siege of Cividale in Fruili. In Europe saltpetre appears to have been produced first by German gunmakers—but at inflated prices. Paper cartridges may have been used at Augsburg in 1377. '*Pfeilbüchsen*' were 14th-century guns shooting a metal arrow.

The gun shown here is a howitzer of about 1450 from Vienna, with a calibre of 160 mm and a barrel of fused iron stave construction. Heavier cannon were also developed. *Centnerbüchsen* fired a 100 lb shot, while huge bombards were fixed to wooden frames. Shot found in the ruins of Tannenburg castle weighed 925 lbs. (Heeresgeschichtliches Museum/ Militärwissen-schaftliches Institut, Vienna)




1: Knight, early 14th C
2: Infantryman, c.1300
3: Crossbowman, early 14th C
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2
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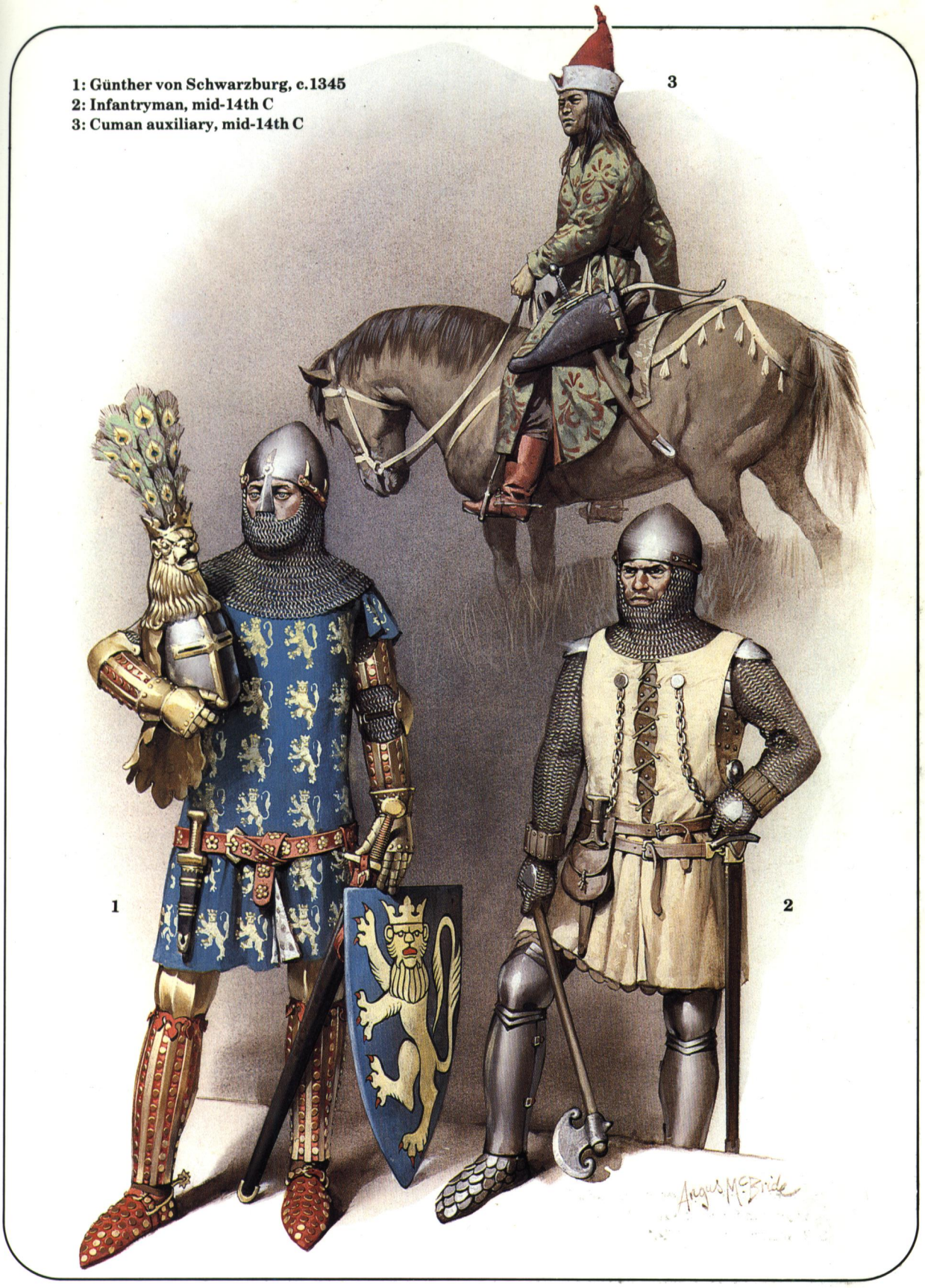
Angus McBride.

1: Albrecht von Hohenlohe, c.1325
2: Otto von Orlamünde, c.1340
3: Infantryman, mid-14th C


1: Günther von Schwarzburg, c.1345
2: Infantryman, mid-14th C
3: Cuman auxiliary, mid-14th C
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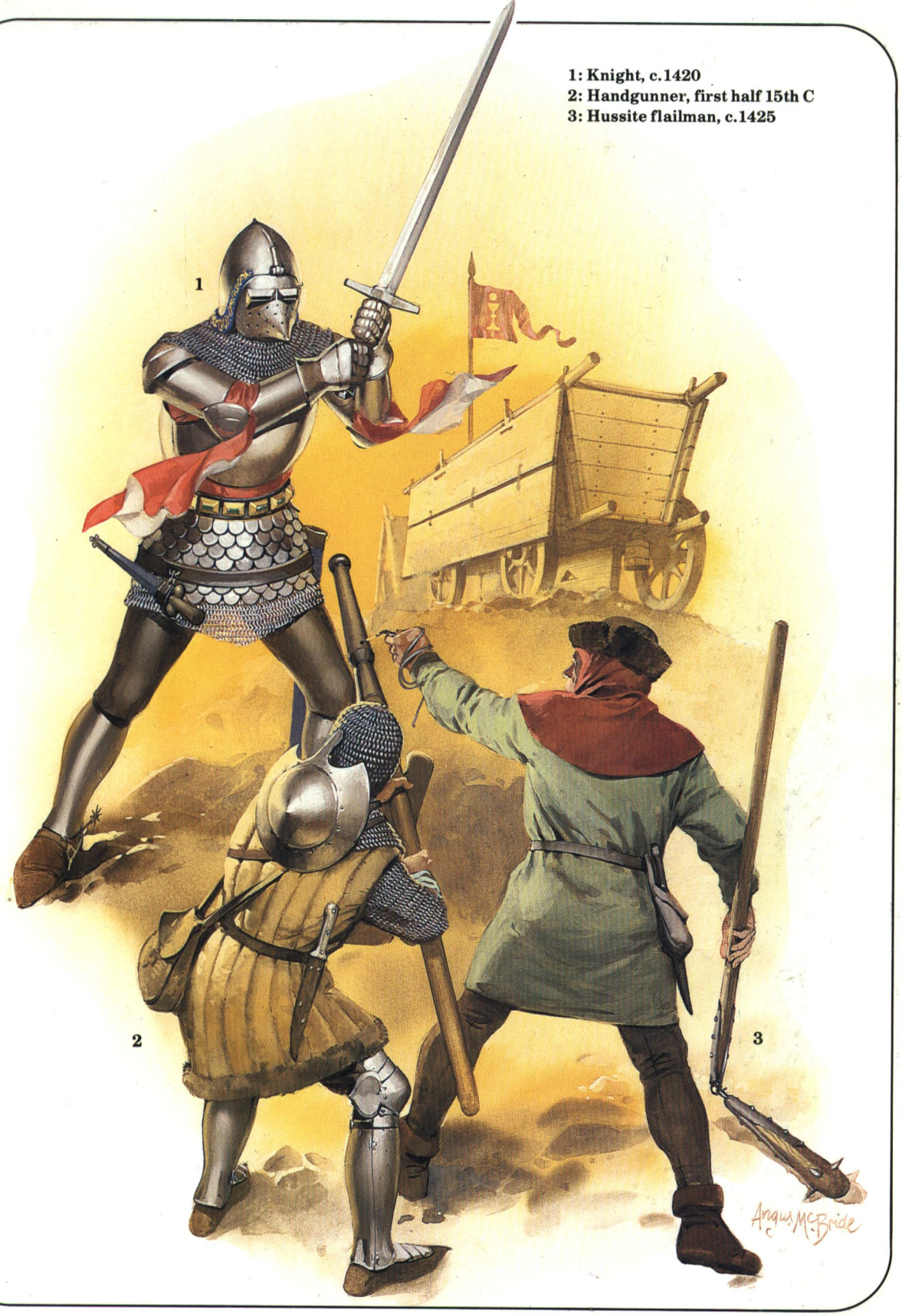
Angus McBride

1: Knight, c.1370
2: Swiss knight, second half 14th C
3: Bohemian archer, late 14th C


1: Knight, c.1420
2: Handgunner, first half 15th C
3: Hussite flailman, c.1425
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Angus McBride

1: Knight, c.1440
2: Gunner, mid-15th C
3: Swiss mercenary, mid-15th C
4: Crossbowman, mid-15th C
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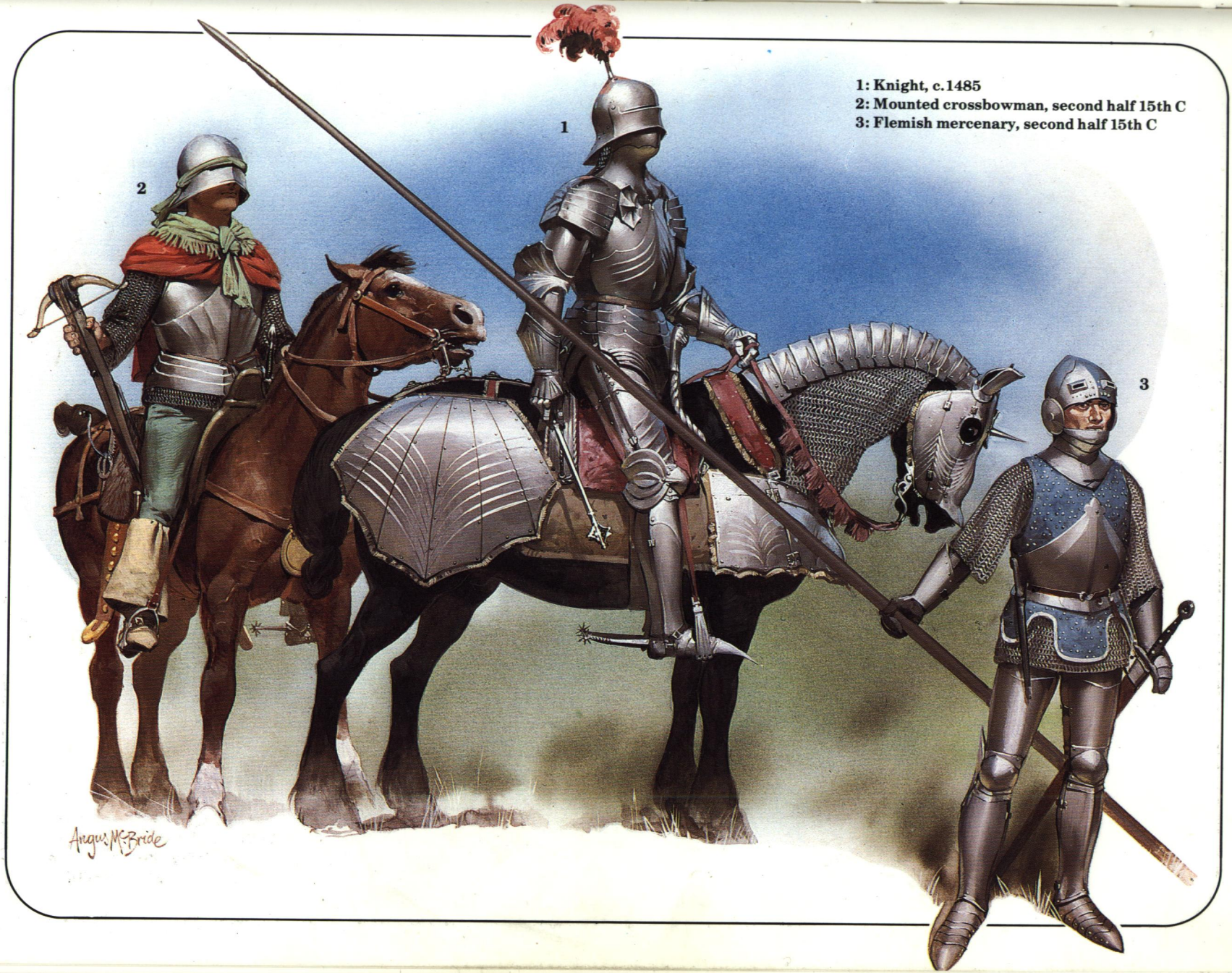
Angus McBride


1: Knight, c.1485
2: Mounted crossbowman, second half 15th C
3: Flemish mercenary, second half 15th C
1
2
3
Angus McBride

1: Knight, c.1500
2: Infantryman, c.1500
3: Handgunner, c.1500